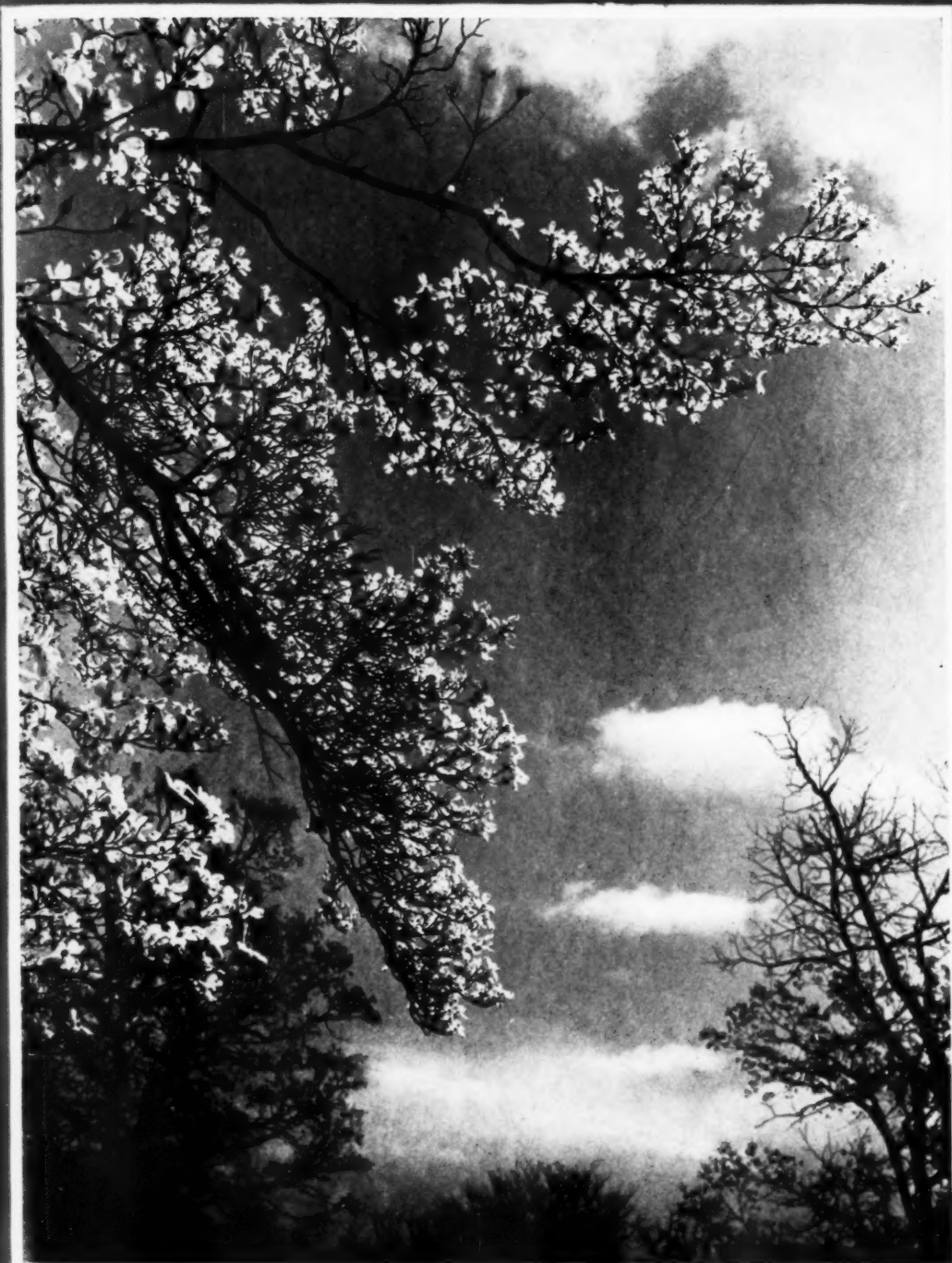


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AMERICAN FORESTS

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THE AMERICAN FORESTRY ASSOCIATION

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The American Forestry Association is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute in the highest degree to the welfare of the nation and its people.

In addition to publication of two magazines—**AMERICAN FORESTS** and **CONSERVATION**, both designed to keep before the people of the country important conservation questions and issues, the Association carries on educational projects in various fields including forest fire prevention, reforestation, protection of fish and wildlife, upstream flood control, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, development of forestry by private endeavor, the teaching of conservation in the schools of the country, promotion of research in timber growing and use and expansion of markets for forest products.

The Association is independent. It has no connection with any federal or state governments. It is non-political and non-commercial. All its resources and income are devoted to the advancement of conservation. It has been so operated since its founding in 1875. All citizens interested in forestry and conservation are eligible for membership.

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Member A. B. C.

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READERS' FORUM

FOR FOREST FIRE HEROISM

SIR: Enclosed is a personal check for \$24.10, which is being sent to you as a further contribution of this Service (Branch of Forestry, National Park Service) to the Fund for the American Medal for Forest Fire Heroism. This contribution was raised at the following fire control training schools conducted by the National Park Service: Hickory Run Recreation Demonstration Area, Pennsylvania; CCC Camp SP-30, Warwick State Forest, Massachusetts; and CCC Camp SP-49, Letchworth State Park, New York.

The manner in which this money was collected may be of interest to you. At the end of each day's training work a sergeant-at-arms took command of the meetings and collected small fines from any members who may have violated any of the rules and regulations of the fire school. For example, fines were collected for failure to break matches in two before discarding them, failure to use fire tools correctly, etc. During the course of the meetings every man in attendance made some contribution. All fines were paid in a spirit of good humor and indicate the willingness of the members to contribute to a worthy cause.—*L. F. Cook*, acting chief of Forestry, National Park Service, Washington, D. C.

FROM GIFFORD PINCHOT TO OLD-TIMERS

DEAR OLD-TIMER: The record of how the Forest Service was born, fought, conquered, and grew up is of national importance, and surely ought to be preserved in full. I want to do what I can toward assuring that the story of what we did, what we faced, and why, gets told straight; and I am trying to put down what I know about it and what I had to do with it, with the idea of printing it in a book. In this undertaking I need and very much want the help of all old-timers.

Many of those who were in the Service during my time have already been of immense assistance. They have sent me personal narratives telling what each one did and saw, what they and the Service were up against, and what they thought about it. The result is a composite account of the Service that I am finding invaluable.

But that is not all. Taken together, the narratives are of almost unbelievable his-

torical value. I want to make the collection as complete as possible, so that the story of the Service may never be lost.

Therefore, I appeal to every old-timer to give me their account of their connection with the forest work of the government—at least for the period prior to the World War. What they send in not only will help me with my book, but also will be permanently preserved, with other similar historical material in my possession, in the Library of Congress. Your personal experience should be made a part of this record.

In your story I hope you will describe the positions you have filled, your duties in each, the names of persons and places, descriptions of early conditions, and anecdotes—all that you possibly can. And especially dates, so that what you send can be combined with the accounts of others.

Above all, I want a picture of your work year by year, told in your own way, and of the conditions under which it was done, the difficulties you had to face, the opposition or cooperation you met, and from whom, the friendly or hostile public sentiment of the time, and if it changed, what made it change. In fact, you cannot give me anything that I will not be glad to have. I hope you will include the reason or influence that made you go into forestry.

Furthermore, I shall be immensely grateful for any information you can give me concerning collections of personal papers of your own or present or former members of the Forest Service—letters, diaries, or whatever else—that would properly form part of the historical material that will go to the Library of Congress for permanent preservation.

I thank you most heartily in advance for your help to your old Chief, who sends you his best appreciation and regards.—*Gifford Pinchot*, Milford, Pennsylvania.

REFORESTATION AS A HOBBY

SIR: I am intensely interested in forestry. I have a hobby reforestation development on Basswood Lake, located on the international border north of Duluth, and I have saved about half a million feet of virgin white pine and planted around 35,000 trees, mostly white pine and red pine, and white spruce. I have also plant-

ed about 1,000 each of twenty coniferous varieties not indigenous to that region. I am planting another 35,000 this spring. Am going to brush and plant a few hundred acres and see whether I cannot demonstrate that such work is economically feasible. To date, it has been expensive, although we did saw 64,000 feet of lumber from dead and down stuff on one section. I am also establishing a little log museum of all sorts of things having to do with trees and timber.—*F. B. Hubachek*, Chicago, Illinois.

CUTTING SYSTEMS FROM GERMANY

SIR: Your article on the come-back of the piney woods (February issue) is bulky. I feel so strongly about the value of this still incompletely recognized natural resource that I am glad to see anything which will promote its proper care.

I saw some cutting systems in Germany which I thought could be profitably applied in that area. I spent some time on the famous Barenthoren Forest, down below Berlin, and certainly if they can get the results they do on that miserly soil, using nothing but Scots pine, I should think that some adaptation of this system could be used in the yellow pine belt. I saw some work outside of Eberswalde, some of which could almost be transplanted bodily either to Cape Cod or to the southern pineries.—*Henry H. Tryon*, director, The Black Rock Forest, Cornwall-On-Hudson, New York.

NEW USE FOR EVERGREEN NEEDLES

SIR: These lines are for the purpose of drawing your attention to a new or additional use for evergreens—other than their use for Christmas trees. In fact, discarded Christmas trees, as well as those that remain unsold on the streets, are ideal for the purpose I have in mind.

The use is this: After experimenting with the needles from my discarded Christmas trees, I have found them ideal for sprinkling on wet, slippery sidewalks and porches. They are as effective as ashes or salt and have the advantage of not leaving an unsightly mess or deposit. My thought is that discarded Christmas trees could be bought up very cheaply and the needles packed and sold for this purpose. Also, the needles of other evergreen decorations could be used. Just such a thing would give additional employment after the Christmas holidays when work is usually slack. Furthermore, the wood from these trees could be used by the unemployed as fuel. All needles not sold could be used the following spring for mulching purposes for trees and shrubs, as I understand they are very good for this.

If this idea could be given the proper publicity it is my belief that many would take advantage of it next winter. Anyway, I would like others to know about it.—*Mrs. Anna B. Unguary*, Denver, Colorado.



KEEP THE FORESTS GREEN!

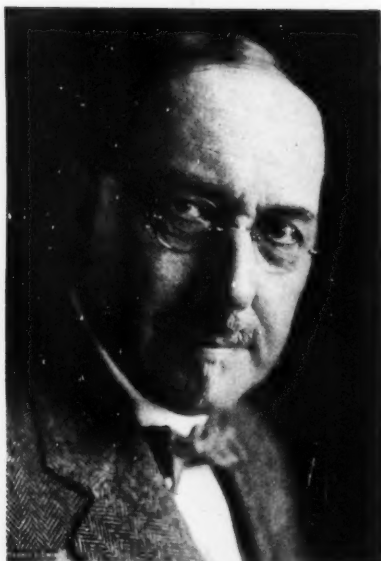
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JOHN C. MERRIAM

DISTINGUISHED in the world of science and letters, Dr. Merriam is an educator of renown. He has always had an active interest in the conservation of our natural resources, notably the forests. Elected to the Board of Directors of The American Forestry Association in 1925, he has served continuously since and his counsel has been of great value in shaping Association policies and in the conduct of its affairs. Best known as a paleontologist, his writings are voluminous in that field, and in the fields of history and geology and their branches of research in relation to education.

Dr. Merriam was born in Hopkinton, Iowa, on October 20, 1869, the son of a banker and merchant there. It has been written that his interest in geology and the natural sciences had its genesis when, as a small boy, he watched the building of his father's house with stones quarried from a nearby river bank. His boyish imagination was aroused and stimulated by the fossil forms embedded in the rocks — evidence

OUR DIRECTORS

that the Iowa prairies had once been the floor of an ancient sea. His early bent for science was encouraged by his mother, a Scotswoman of great understanding, and by two family friends, science professors of his college. His wife, Ada G. Merriam, was an enthusiastic and effective collaborator on all basic human questions.

He obtained his B.S. degree from Lenox College, Iowa, and went on to the University of California for training in historical geology, returning to Lenox as an instructor. Later he went to the University of Munich, where he received his Ph.D. Returning from abroad, he joined the faculty of the University of California, teaching paleontology and historical geology until his services were requisitioned by the Government for help in scientific work at Washington at the time of the World War. After notable war service, he returned to the University as dean of the faculties, remaining until 1920, when he was appointed President of the Carnegie Institution, at Washington, D. C.

In this work, Dr. Merriam directed one of the world's largest centers for scientific research—ranging over the entire field, with its Mount Wilson Observatory, its restoration work of the ancient Mayan cities of Yucatan, its revelatory studies of genetics, the cracking of the atom, and studies of the earth's magnetism, to mention just a few.

From early youth Dr. Merriam has taken a wide interest in all fields of conservation and that interest he continues to hold. Under him as president, the "Save-the-Redwoods League" has developed and is carrying forward a program of redwood preservation that is known throughout the world. He is a leader not only in the preservation of nature as represented by state and national parks but in the development and administration of such properties to stimulate and make possible an appreciation of nature by the lay public. His clear thinking and his deep understanding of the physical and biological elements that make up nature and the world are a tower of strength to the work of The American Forestry Association.

On January 1, 1939, after eighteen years' continuous service, Dr. Merriam retired as President of the Carnegie Institution, with the title of President Emeritus, to pursue special research for the Institution. As student and master, his tolerance, broad knowledge, and scientific attainment write him today among the most eminent of living men.

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nated in many areas, the present generations of American wildlife would have lost their sense of joy. That they have not is one of those mysteries of nature that strengthens one's faith that creation in its eternal course means this to be a world of happiness and not an interlude of war and sorrow.

Just why wildlife at play — or in any other form for that matter — should have such a compelling interest for all men and women is a question for the psychologist to answer. But certain it is that without them the woods would be solemn groves indeed.

From the Forest Products Laboratory at Madison comes word of a new discovery that may revolutionize the use of wood. In the course of experiments in kiln drying swamp oak of the south, which is now largely unmarketable because of the difficulty of seasoning it, the Laboratory found that by soaking the wood in a given chemical solution and drying, it could be easily bent, twisted or molded while still hot into almost any desired shape which would be retained upon cooling. And if put under pressure while hot, individual pieces would fuse together in a solid mass. (See photograph, page 228.)

The treatment has been tried only on swamp oak but the Laboratory believes it will prove applicable to other species, including softwoods. The process is cheap and simple and the swamp oak treated by it had all the characteristics of a true plastic. While it is premature to claim too much for the discovery, it may well prove to have a profound influence upon methods of wood utilization and at the same time open markets to billions of feet of hardwoods and softwoods that now go to waste in the form of mill refuse and unmarketable species.

As this issue goes to press, it is "cherry blossom time" in Washington. The city is full of visitors. There is scarcely a room to be had at the hotels — so great is the spring lure of blooming beauty along the banks of the Potomac.

The telephone rings again. This time it's a Washington radio commentator wanting to refresh his memory of when and under what circumstances Japanese cherry trees first came to the Nation's Capital. Strange how little this story is known or remembered even by residents of Washington. Here it is in tabloid form:

The first planting grew out of a friendship between two women high in official life at the time — Mrs. William Howard Taft, wife of the President of the United States, and the Viscountess Chinda, wife of the Ambassador from Japan. The Viscountess desiring to present her friend Mrs. Taft with a Japanese gift wrote to Madame Ozaki, wife of the Mayor of Tokyo, asking her to send a few small trees of the Japanese flowering cherry (*Prunus Yeodoensis*) for which Tokyo had become world famous.

Mayor Ozaki, who apparently was chamber-of-commerce-minded, responded with a much larger gesture and sent 3,000 trees as a gift of friendship from the city of Tokyo to the government of the United States. With simple ceremony they were planted on March 27, 1912, around the Tidal Basin in the shadow of the great white shaft of the Washington Monument. Mrs. Taft placed the first tree planted and Viscountess Chinda the second. At the base of each of these two trees a bronze tablet was set in concrete bearing suitable inscriptions of the planting. Of course, some of the original plantings have been replaced and the plantings largely extended.

Orin Foster
Editor.

NATURE DONS HER CAP AND BELLS

"What goes up, must come down!"—
An otter on his slide

New York Zoological Society

"Hide and Seek" — raccoon at play
Hobart V. R. R.



The fox, jester of the wildwood, in
playful mood

J. S. Dixon

Center — Study of baby hair seal
O. J. Murie

Young beaver stealing a free ride
Forest Service

NATURE'S CAP AND BELLS



Deer in Festive Mood

J. S. Dixon

By ARCHIBALD RUTLEDGE

WHILE we are accustomed to admire the order, beauty, and mysterious continuance of nature; and while most of the aspects of the behavior of nature's children engage our interest and endear them to us, yet there is one feature of their lives that is rarely considered, even though in many respects it is the most winsome and appealing: I mean their merriment, their fun, the happy pastimes they have, the innocent abandon of their joy.

It is strange that this aspect of wildlife should have escaped even casual observers; for, as a general thing, any one in his garden, or in the woods or field can both hear and see evidences of it. I know that I rarely go abroad without detecting the sight or the sound of some harlequinade. And it is very heartening to know that there is much more of it than one would suppose. Life in the wilderness is not all a struggle for existence, a grim and constant battle between the forces of life and death. There often come times of relaxation, of playfulness, of airy joy, of drollery, and of the spirit of festival and fiesta. And it is then that nature may be said to doff her sober garb to don her cap and bells.

Late one December afternoon I made my way through the dusky semi-tropical woods of a sea-island toward the beach, guided less by the dim pathway than by the soft thunder of the surf ahead. While I was in the forest, a deep twilight had fallen; but when I emerged from the woods of oak and pine and palmettoes, the whole world was suffused with a radiant afterglow that lighted the ocean, the far sweep of the island's fairy shores, and the deep woodland out of which I had come. On this island the deer lurk in the coverts all day; and

at sundown they come forth to feed on the marshes of the interior. But on this particular evening, some of them, at least, apparently had no thought of feeding. Hidden in a dense cluster of myrtles on the crest of a commanding dune, I saw certain delicate forms come stealing out of the fading woods. Five I counted; then ten; then sixteen. And all were trooping toward the beach, where certainly no dinner awaited them. So shadowy were they that I detected some of them only by their vivid white tails, which are supposed to be raised only when they are alarmed. But I was to learn that deer love to frolic, and they raise high their snowy tails when they are in a festive mood. Reassured as they came within sight of the open beach with no enemy in sight, they all made a wild dash for the water, for all the world like a rollicking crowd of human bathers. They were silent, but in every other way they were playing high jinks. Some of them raced down the glimmering sands; others ran into the shallow surf, plunging about in it with utter merriment. One sedate old stag got his enjoyment out of watching the fun. There he stood on the last seaward dune, looking on and approving; and perhaps secretly lamenting that his own youth was passed. I have never forgotten the radiance of that wide-winged sunset, lighting this charming scene of nature's wild revelers at play. As far as I could tell, the deer ran races, played tag, had jumping contests, and for the time completely threw off their customary stealthy wariness.

For droll and harmless mischief no living thing exceeds the wood-rat, one of the most engaging of all

created things. He is so constituted that he just has to have his fun. If playing waggish games, especially on man, is a sign of intelligence, this is the most wonderful member of his large family. Dr. W. T. Hornaday relates that he knew two wood-rats to carry nearly a pint of watermelon seeds from the ground floor of a house to the second story, where they hid the seeds under a pillow; and they took a tablespoonful of cucumber seeds from the kitchen upstairs, where they hid them in the pocket of a vest hanging on a nail. One has been known to carry an entire set of checker-men out of a living-room into a kitchen, where they were deposited in an old saucepan. The secret of real humor is said to consist in placing incongruities together; and if this is true, the wood-rat has a genuine sense of humor. His pranks are clever and laughably absurd.

Of all animals, perhaps the most buoyantly playful is the otter; but in this respect both the seal and the mink are close competitors. However, the otter, even when he is old, appears always game for a frolic; the love of merry sport is inherent in his nature.

Down in Hampton Park, in Charleston, South Carolina, I used to enjoy watching an otter, that had been caught in a neighboring river, and had been placed in a rather good pen, well supplied with water. One day I missed him. Hunting up the keeper, I asked what had become of my frolicsome friend.

"He's right over here," he answered, "in a new pen I made for him. You see, when I was a boy, I once watched a wild otter slide down a bank, hitting the water with a splash, and climbing up again, and doing the same thing, having the time of his life. So I just figured that if I made a slide for this old boy, he'd get a lot of fun out of it."

Walking over quietly, I saw a sight both amusing and pathetic. The big otter was in a larger pen, with a wooden chute leading down into a tank. He was not only sliding, but sliding to make up for lost time! When he wasn't hitting the water, he was either scuttling up the side of the trough or sailing down the middle of it. He was having the time of his life. And I didn't know to whom my heart went out more—the otter, or the keeper who understood how to give him the fun that he most enjoyed.

One summer day, in Atkinson's Creek, which meanders leisurely into the wild heart of the great Santee Delta, I came, not upon one, but upon a whole family of otters playing. My attention was first attracted to them by the ripples on the otherwise placid waters of the creek. As the disturbance was round a bend from me as I approached in my canoe, I ran my boat into the bank, went ashore in the dense marsh, and, sheltered by its tall greenery, approached the revelers, uncertain of their identity until I came within sight of them. At last, through the final fringes of the marsh, I caught sight of the frolicsome band of wild children.

On the farther side of the creek was the wreck of an ancient wharf, unused since the long ago days of rice-growing; beside it, where the landing once had been, was a rather steep bank, down the center of which glistened a smooth wet track,—a regular toboggan-slide. As I looked, I saw a big otter, all wet and gleaming, at the top of the slide. In a moment he had let go all holds, and was flashing down the slide for the water, which he struck with a splash, whereupon he turned gracefully on his back, then completely over again, literally rolling in the water with an incredible litheness and grace.

Suddenly my attention was distracted, even from such a performance, by a movement in the marsh at

the foot of the slide. Through the dim marsh-aisles came five young otters, elves with glistening coats, bright black eyes, and an air of glad alertness. Although not born in the water, otters are born to it; and even as infants they approach it as if it were their natural element. Now behind them I saw the mother; but they did not wait for her to take the water first. They went right in, swimming with so little apparent effort as to make the swimming of other creatures appear labored. But they were going nowhere. They were just out for a lark. Reaching the middle of the creek, the mother, who had swum out in front of her babies, executed a sudden dive, a characteristic feature of which was the strange yet graceful way in which she humped her back. Upon this, every little otter gracefully followed suit; one heavy furred tail and five little ones gave in concert a flirt in the air, and then vanished; also, certain little black feet, having not yet gained their full skill, sprawled for a moment ere they disappeared beneath the water. As suddenly as they had gone down, they rose; and then the real frolic began. They leaped almost clear of the water, they rolled, they turned somersaults. They swam in swift circles, dived, dashed with a slithering motion over the surface, lay whimsically still. The waters of the creek danced with their fun-making.

After a time the mother and father swam ashore, where they lay basking on the dimpled brim of the water. The children played a little longer, when, in the order of their weariness, they returned to their parents. As each one came in from swimming, I saw the mother nuzzle it tenderly, stroke with her tongue its glistening brown fur, and gaze upon it with that especial delight that perhaps a mother alone ever experiences.

The otters sunned themselves for perhaps ten minutes; then they climbed the steep mudbank. Reaching the top of the bank, first one of the old otters, then the other, slid down. Their performance seemed to me studied, as if they were showing their children how the thing was to be done. The babies crowded to the brink in palpitant excitement. Two slid down together; then the smallest of the five came alone; then the last two, comically trying to hold on to each other. If they had been human children, they would have screamed and laughed for joy. They did neither, but I am sure that as exciting a joy was theirs.

Recently I saw a remarkable proof of the fact that animals often play with creatures of utterly different species. A colt had been turned loose in a village lot. In a yard adjoining, a police dog was at large. After what appeared to be a challenge to a race, the colt started at a furious pace to run parallel to the fence; the dog followed suit on his side. When they came to the limits of their respective enclosures, which had the same bounds, they started back again, racing at top speed just for the fun of it. For more than a half-hour they kept this up until mutually exhausted with their frolic.

Many wild things express their joy in sheer speed, in the glad exertion of their superb physical perfection. They delight, as our finest athletes do, in executing difficult feats with thrilling precision. I have watched, fascinated, the high soaring of a broad-winged hawk, apparently asleep on mystic wings, tirelessly and without effort turning with the grace that belongs wholly to experts of the air. In all the loneliness of wings, he could not but enjoy, while pendent in the heavens, his serene and impartial view of the pendent world beneath him.

By the very manner of their flight many birds manifest the jubilation of their spirits. Pigeons well illustrate what I mean. A meadow-lark, singing on the wing, flies joyously, as he does not when he is silent. The mocking bird, on quivering pinions, will sustain himself while pouring forth his wildest melody.

Whether at home or far from it, we can, if we are alert, observe the joy of nature, and by so doing share the happiness of the world. A few years ago it was my privilege to go out to Bird Bank, a sandbar some distance off the mouth of the Santee River, which pours its yellow flood into the ocean some fifty miles northeast of Charleston.

On reaching Bird Bank with a friend after a hard row, we pulled our boat high up on the sands and

feed but to frolic. Of course, there seems to be about the mirth of nature something demure,—a certain elegance that forbids the boisterous. Deep-hearted joy is rarely extravagant in its expression; and in nature the blaring artificiality of the night club and of the football celebration as evidence of happiness is missing. Sometimes I think that mere peace is the greatest proof of joy. This mighty concourse of wildfowl, during the two hours that I watched them, spent their time in basking, in drowsing, in renewing old acquaintanceships. Here and there little groups were playing games of ring-around-the-rosy, duck-fashion. It was memorable to see that great multitude, utterly joyous and relaxed, taking their siesta on those white sands ringed by that lonely sea.



Courtesy, "Our Dumb Animals"

"On with the dance, Let joy be unconfined!" — Dancing bears in Jasper National Park, Canada

covered her with palmetto fronds that we had brought as camouflage. We reached there just before the morning flight of ducks came down the river. For years I had watched them go to sea; but I had never before been there to receive them. Hidden under the greenery that shielded our boat, we watched the incredible clouds of wildfowl heading toward us. Flying silently until they had almost reached us, each flock would set up a glad clamor as it neared the Bank. By thousands they came,—teal, mallards, black ducks, widgeons. And most of them alighted on the sand! Some came to rest in the shoal water in the lee of the Bank, but these almost immediately swam ashore, and began to walk about, quacking ecstatically.

Before us in the roseate light of the new day lay the gleaming lonely sandbar, surrounded by the restless ocean tides. And here came the gay myriads,—not to

Of all the birds known to me, one stands supreme as the prince of jesters. As we know from history and from literature, the court fool was usually the wisest and the wittiest man in the palace of the king. I cannot answer for the wisdom of this bird—unless to take life as a huge joke be wisdom; but the yellow-breasted chat is assuredly the most artistic mountebank in the wild realm of nature. Until you have seen him on the trapeze, and until you have listened to his waggish raillery, you do not realize what you have missed in the way of sheer entertainment. Nor is the chat a rare bird, to be seen and listened to only by the favored few who have time to seek him out. In almost any old bushy clearing you can watch him and hear him. But you need some patience; for, with all his rollicking antics, he is a shy and secretive soul. If you move, he will be still; if you make yourself one with your

surroundings, he will perform—not for you, but just because he loves to play the fool.

Although he is the largest of the warblers, he does not warble; he chortles. What a mad medley of whistles, catcalls, gurgles, chuckles, grunts, and mews he gives; then falls suddenly silent, as if to note the effect of his cheerful jargon on the listener! While I have seen the swallow-tailed kite perform marvelous aerial maneuvers, the chat is a mountebank on a trapeze. Rising from the bushes where he has been giving his one-man comic opera, he will drop, with wings curiously curved, and with feet extended, appear to catch himself in mid-air, and then slide downward with the most absurd yet amusing awkwardness. His tumbling lacks grace, yet it is amazing in its careless heed and reckless art, manifesting that seeming abandon which is possible only when there is a complete mastery of self-control. Here is a stunt flier, dressed for the part; a wild eccentric, the mystery of whose behavior no bird-lover, however keen, has quite fathomed. Truly, he is a beloved vagabond, and nature's jester supreme, who exults in producing doggerel verses and in indulging in the strangest vagaries of behavior.

The jay is a practical joker. Apparently, he delights in startling. Nature, with her even-handed justice, made him very beautiful, but gave him a harsh voice. He has no song. His ordinary cry closely resembles that of the red-tailed hawk, a predator naturally dreaded by all smaller birds. Nothing is more characteristic of the jay than to dash with his marauding clamor into a grove where little birds are blissfully warbling like innocent elves. The effect of his strident and stormy coming is, of course, immediate cowering silence. The tiny minstrels are scared to death by the wild cry of this swash-buckling bravado, who, when he has frightened all the other birds within hearing, will slyly peer about, as if to observe the consternation he has created—a true jester in the sense that he is a feigned braggart and bully.

Nature's cap and bells should suggest to us, I believe, not only the drollery and fun of the jester, but the gaiety which manifests a lightness of heart,—the comedy of life, the pure enjoyment of the privilege of existence, the mirth that has no bitter springs, the jubilee of soul, whatever manifestation it may take.

One day in mid-October my natural inclination to wander took me into the shaggy wilds of Bear Valley, a superb mountain fastness in southern Pennsylvania. Throughout its length flows a trout-stream, now warbling over mossy rocks, now brimming a pool that flints like a huge amethyst under the swarthy hemlocks. For many years it was one of my delights to walk about halfway up the valley on one side of the stream, returning on the other.

On a slope about a hundred yards above the stream I paused to look downward on the breathless beauty of the wildwood, when my attention was attracted to a movement on a little sunlit arena. I saw a male ruffed grouse, the rich brown of his plumage, now lighted by the soft suffusing glow of the October sunlight, blending perfectly with the rich colors of the fallen leaves on which he stood. Presently another grouse walked into sight; then a third, then a fourth. From the ease of their attitude it was apparent that they had not detected my presence. There they stood, those four princes of the woodland, as patrician as any birds in all the world. Much of the true meaning of beauty, of grace, and of natural glamour can be learned from watching such aristocrats. Of course, I was prepared to find them in this setting; but what I was unprepared for was the performance it was my privilege to see.

During the mating season, it is natural for us to expect the unusual in behavior,—a display of emotion that manifests itself in many ways: sometimes in combat, sometimes in song, sometimes in extraordinary attempts of a wooer to make himself attractive. But often at times far removed from the rapturous season of mating and of love, nature will don her cap and bells and frolic in the greenwood.

One of the grouse that I was watching lowered his wings, fanned out his beautiful tail, lifted his ruff, and then began to pirouette—for no reason than that a mood of playfulness was upon him. One feigned fear, drew all his feathers tightly about him, and darted away, only to return a moment later with all his plumage gaudily displayed, and he returned dancing! Soon the other two grouse joined in the fun. They played tag, they tried to outdo one another in posturing; they challenged to fight, but it was all play. Far back in the wild mountains they were just having a little Mardi Gras of their own, impelled perhaps by the beauty about them to celebrate their joy in life.

But to be aware of the spirit of joy prevalent in nature, one does not have to visit the wilds. Look about your garden; look and listen. From the very topmost tip of a tree a brown thrasher warbles ecstatically. If it be in the springtime, see those two mourning doves sailing in strange impassioned flight,—a manner assumed by them at no other time. On those first warm evenings of spring, how cheery is the piping of the little frogs! And on that magic day in May, look who has come from the tropics to visit you: a rubythroat, a winged jewel, whose very presence sets the heart aglow. If he doesn't make you believe in fairies, nothing will.

More than a hundred years ago, when John James Audubon was in Scotland, he visited Sir Walter Scott, showing that great man some of his recent drawings of the birds of America. Scott says, in his diary, under date of January 24, 1827: "Visit from Mr. Audubon, who brings some of his birds. The drawings are of the first order—the attitudes of the birds of the most animated character . . . The feathers of these gay little sylphs, most of them from the southern states, are most brilliant."

One expression in this famous passage deserves notice. It is, "these gay little sylphs." It took a genius to catch in such a phrase the mystery, the other-worldliness of the delicate beauty, fairy charm, and elfin singing of many of our native warblers. But the word which appeals most to me is "gay." Gay to the eye of the old master who saw them pictured by another master, they should be gay to us for other reasons as well; for we see them rather than their pictures; we can mark the changes in their plumage as they radiantly move; we can observe them in ecstatic flight; and we can hear their songs. . . . Music with us is more likely to be mournful than joyous; but when nature sings, she is usually rejoicing. She wears her cap and bells, and it has seemed to me that the birds voice in their singing not their own joy alone; but lyrically they contrive to express a part of the loveliness that has inspired them. Thus when I hear a woodthrush fluting in a scented pinewood at dusk, I have brought to my heart in his tone something of the dewiness of twilight, the damp fragrance of the exhaling earth, the silent enchantment of the evening star.

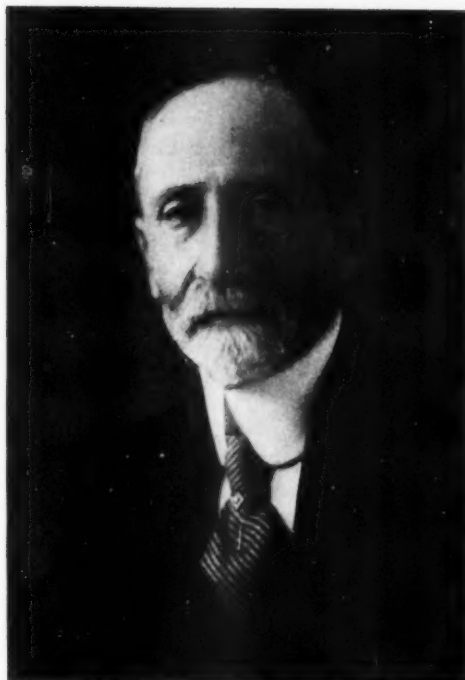
But perhaps to be truly aware of nature's mood of cap-and-bells, her spirit of unreflecting joy, it is necessary for us to approach her in such a mood ourselves. If we discover joy, we must seek it in a spirit of joy. Only the heart receptive to mirth will ever recognize it and enter its radiant realm.

"THE APOSTLE OF THE TREE"

By M. E. MUSGRAVE

Forest Conservation for the Good of the People of Mexico Has Been the Guiding Passion in the Life of Senor Miguel de Quevedo for Nearly Half a Century

THE TRAVELER entering Mexico City from the north never fails to admire a grove of young eucalyptus and acacia trees through which the highway passes, over the low hills of Tepeyac. It is not immediately known, however, that this grove is a monument — a living, growing, verdant monument to a man's vision and dogged determination. Every swaying branch and rustling leaf sings a eulogy to Senor Miguel A. de Quevedo, affectionately referred to by the people of



Senor Miguel A. de Quevedo
—the "Apostle of the Tree"



Eucalyptus, introduced into Mexico by Senor de Quevedo, is now one of its most popular shade trees. These are nearly 100 feet tall

Mexico as *El Apostol del Arbol*—the Apostle of the Tree.

The story of this little grove, now known as the National Park of El Tepeyac, is both interesting and amusing. Not many years ago, its few acres made one of the most unsightly spots in the vicinity of Mexico City. Senor de Quevedo made inquiry as to ownership, but no one would lay claim to such an eyesore. With characteristic initiative and energy, he decided to improve it himself. Debris was cleared away and, for several seasons, young trees were planted. The transformation was amazing. The site became so attractive that numerous claimants to the property appeared. President Lazaro Cardenas, recalling how hideous the place had been, was so impressed by what had been done that he set it aside as Mexico's smallest national park, thus bringing it directly under the protection of the man who had created it.

Senor de Quevedo, member of the President's cabinet, is director of the Department of Forestry, Fish and Game. This is, in fact, a ministry. Though not so specified, its functions embrace supervision of national parks, direction of all soil conservation work, and preservation of the country's flora and fauna. In addition, Senor de Quevedo is president of the *Junta Central de Bosques y Arboles* and of the *Sociedad Forestal Mexicana*, active conservation organizations created by him.

In 1909, when President Theodore Roosevelt decided to hold the North American Conference for the Conservation of Natural Resources, he sent Gifford Pinchot to Mexico to invite participation by that country. Much to his surprise and delight, Mr. Pinchot found Senor de Quevedo already engaged in reforestation on the barren hills south of Mexico City. The previous year, when the City of Vera Cruz had been partially covered by encroaching sand dunes, he had begun control of the shifting sands by planting thousands of young casuarina trees.



The Mexican Forest Service

Then, — and Now! Taken about twenty-two years ago, this shows the beginning of reforestation work on the barren hills south of Mexico City. One of the young planters, Daniel Galicia, is now at the head of the National Park Service of Mexico. The picture below, taken on the same spot, shows the result today

It was but natural that this ardent conservationist of Mexico should see the advantages of cooperative conservation, and that his country should ratify the treaty which insured protection for migratory birds from Canada's tundras to the tropics. This cooperative spirit motivates his acts today, and he modestly looks to his neighbor on the north for leadership in the new soil conservation work, although he did years ago many of the things our country is doing now to save soil from the ravages of erosion.

Born in 1862 of aristocratic Mexican parents, Senor de Quevedo opened very clear gray eyes upon the beautiful city of Guadalajara. Although it is not so recorded, it is quite possible that the first thing those clear eyes rested upon was a leafy tree-top just outside his nursery window. For he early developed a love for trees, and this love became the guiding passion

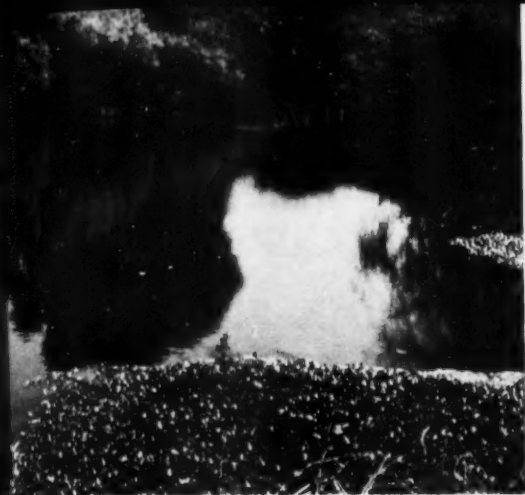
of his life. Possessed with an insatiable curiosity which drove him to study and investigation, he early achieved a brilliant scholastic record. Following the death of his father, he was sent to France for higher study. He received the degree of Bachelor of Completed Sciences from the University of Burdeos and, later, in 1887, he earned the title of civil engineer from the Paris School of Bridges and Highways. In 1888 he returned to his native country.

No land was richer in opportunities than was Mexico at that time. And never before had the young Senor de Quevedo so fully realized the extent of its natural resources. Vast forests stretched through tropical and temperate zones; great, unharnessed rivers tumbled down the mountainsides; there were rich mines of coal and metal; there were many acres of fertile land. Development had been slight, but already it smacked of exploitation by a few men of wealth and power. To save these great resources for the people of Mexico was the modest task this young enthusiast cut out for himself. For, although he sprang from an illustrious and aristocratic family, he was always, as the biographer, Julio Prado, points out, "inspired with the noble socialistic ideal of collective good."

Wherever the young engineer turned there was great need for his energy and technical skill. His first undertaking was the drainage of the Valley of Mexico, consisting in part of malarial swamps which menaced public health. Then, from 1894 to 1900, the development of Mexico's potential hydro-electric power engaged his attention.

At this period, power for busy mill wheels was derived from wood; and forests were being cut at an alarming rate. Watersheds were being deeply eroded and floods were becoming a problem. This was most marked in the vicinity of Mexico City and in other large centers of population. Senor de Quevedo made a series of hydraulic studies and developed water power on the Montealto and the Tlalnepantla rivers, near Mexico City. Later, similar developments were made on the Magdalena and Chalma rivers. These projects resulted in the saving of much valuable timber, which otherwise would have been used for power.

Many tree-saving devices contributory to the nation's economic welfare have since been adopted. After detailed study, engineers urged the use of closed coke furnaces instead of the old open type. By this development a superior quality of coke was made, and the gases, instead of escaping, (Continuing on page 224)



A fish-rearing pond — important in Mexico's conservation program — near Uruapan



Tzararacua, "The Sieve" — an unusually beautiful falls in the National Park. Barranca de Cupatitzio



Hardwood logs — no lumber may be cut in Mexico except that marked by government foresters



A highway through the pine forests, leading from Mexico City to Morelia, in the state of Michoacan



Here is the unusual sight of banana and longleaf pine trees growing in close proximity



In this silver pool, created by the "Singing River," the daughter of an ancient Tarascan king bathed



Looking northeast in the reclaimed "forty" — which is Holland's School Forest — over the thrifty young pines planted only four years ago

HOLLAND, Michigan, is a city noted for tulips, furnaces, wooden shoes, good coffee, and cleanliness. It is also noted for an unusual school forest in the making

were begun in 1929 by the city. We took care of the tulip beds on the school grounds and have worked with the Chamber of Commerce on many features of the Festival

HOLLAND'S SCHOOL FOREST

By SHIRLEY W. ALLEN

and a high school biology department that is making it.

The tulip lanes which greet thousands of visitors each spring when "Tulip Time" is staged, and the school forest of forty acres located five miles south of the city, are the results of a belief: "High school biology can be taught in terms of service to the community."

"We have always celebrated Arbor Day," said Miss Lida Rogers, head of the biology department. "We had planted trees and shrubs in working out the landscape plans for school grounds and the athletic field; students had helped to plant trees in the city park and had assisted the American Legion in its memorial roadside planting," she continued. "Planting of the avenues of tulips in the spring and the other features of the Tulip Festival



Back in 1935, boys in the Biology Department planting trees on the School Forest

tival popularly known as "Tulip Time." Miss Rogers paused here, without adding that it was *she* who first, in 1927, suggested the Tulip Time enterprise. But one could hear unspoken the inevitable: "We needed more worlds to conquer." She would probably have phrased it: "High school biology needed another opportunity to serve Holland."

About this time the idea of school and community forests was getting more and more attention in Michigan. Service clubs, Legion posts, women's clubs, and even local fire companies were raising funds to cover the labor of planting their own forty acres in national forests under the leadership of the Forest Service, and in state forests through a plan promoted by the *Detroit News* and the State Department of Conservation. Here and there in the northern part of the state, a tax-reverted "forty" had been obtained by a school board or by village or township authorities and started on its way from bare ground back to forest. Occasionally a tract with some second growth on it was presented to a school district by some land-owning corporation.

But there were no available state lands close to Holland, and a school forest couldn't be established without land. The school and community forests so far organized had no legal status and there was question as to whether school boards, in particular, had any business engaging in the practice of forestry.

Then in 1931, Professor E. V. Jotter, who was at that time with the University of Michigan, addressed a convention of the Parent-Teacher Association on community forests. He also talked, upon invitation, to Miss Rogers' biology classes and one thing became certain: Holland must have a school forest. A new law became effective that year granting authority to counties, school boards, and municipal governments to acquire land and devote it to community forest purposes.

The usual search for suitable land and for funds began. Cooperation was promised by certain citizens of means and influence. Things were moving along admirably when depression staged its first explosion. Following this, the death of two important cooperators in the community and the tightened financial situation called a temporary halt.

Then one day in December, 1932, at a local Exchange Club meeting, the late Albert C. Keppel heard the irrepressible Professor Jotter explaining the new state law which authorized community forests.

"There's that forty," thought Mr. Keppel, "that's blowing away or growing up to briers; there are a few old white pines on it and a little corner of beech, oak, and hemlock. The high school might as well have it. It's five miles out, but it ought to be a forest."



A view of the hill looking from the northeast. Formerly blowing away, or growing up to briers, the School Forest has stopped the sand blow by placing brush and then by planting along the contours



Brush, placed on the sand hill in 1933, checked the shifting sand, and the jack pine seedlings in the foreground were planted in 1936. The photograph was made in 1939



Picket sand blow control was set up in the summer of 1939. Widely used in Central Europe, the students are proud that they were the first on this side of the Atlantic to use the method

Well, today it is a forest, rather small to be sure, but dotting the snow in winter and the white sand in summer with thousands of red pines and white pines; exhibiting also some of the most efficient sand-blow control to be found anywhere along the great dune belt on the east shore of Lake Michigan.

It hasn't come about, however, without plenty of sustained effort with many cooperators in overcoming obstacles. Mr. Keppel's proposed gift to the school board was no Garden of Eden, far from it, with its great sand hill piled up against an old vineyard at the east side, a wilderness of briars, a broken-down orchard, and complete absence of available water. The school board's committee took a good look at this gift horse's mouth and had just about decided to recommend refusal with the conviction that "fertilizing and watering would be impossible."

Back came Professor Jotter to explain and win acceptance for the idea. And so the first trees were ordered from the nursery of the State Department of Conservation. A day was set for demonstrating the method of planting. Tools were borrowed from the University and with three visits by the cooperating forester the close of spring in 1933 saw about four acres planted and some attempt at trimming up the old orchard and vineyard. A start also had been made on placing brush on the sand hill and planting beach grass on one or two small sand blows.

The winter of 1933-34 played havoc with the orchard, and the sand blow was getting worse. So the school board obtained the assignment of a crew of ten CWA workers with a foreman experienced in handling relief labor. With the expenditure of 1,200 hours' work, the orchard was cut into fuel wood, the brush windrowed where it would serve best, and the stumps taken out and used in

stump fences at strategic gaps in the sand hills at the east side of the tract. While the biology pupils had no hand in this particular task, they had planted beach grass under the direction of Miss Rogers, obtaining it from a nearby farm where dune-control work was in progress. Of course, they had done the tree planting.

Six thousand trees were obtained and planted in the spring of 1934—enough to cover almost six acres. Spacing was roughly six by six feet, and the planting was done in furrows which had been plowed for the purpose by a neighboring farmer.

Further scattering of the available brush has proceeded since 1933, and in 1939, with the advice and help of foresters of the Soil Conservation Service, a sample control plot, using low stake fences in a pattern of rectangles, was installed. Trees were planted in the protected squares.

Of course, it has been necessary to plow firebreaks along the roads bordering the forest and to disc them each season. One grass fire starting at the highway in August, 1937, was stopped at the nearest firebreak. A system of interior roads has been laid out by the city engineer, and these will further serve to protect the area.

Each year, since 1933, enough trees have been obtained from the state to reforest from four to five acres. In 1939 the area planted was (Continuing on page 238)



The log cabin on the Forest — replica of the first house built in the city of Holland — serves as a headquarters for both work and recreation. To the right, boys of Biology I are roasting "wiener's" before the fireplace, and (above) Miss Lida Rogers and J. S. Bennet, biology teachers, watch with interest the seeding of a nursery bed



AGRICULTURE RETAINS THE FOREST SERVICE

Reorganization Plans for Present Session of Congress Leave Forestry Agency Untouched

CONSERVATIONISTS' perennial fight in the federal arena to retain the Forest Service in the Department of Agriculture appeared to have been successfully concluded—for the 1940 season at least—on April 11 when President Roosevelt sent his fourth reorganization order to Congress. The order made no reference to the Forest Service or any of its activities. And in transmitting it to Congress the White House announced that the order is the President's last under the authority granted him by the Reorganization Act of 1939 which expires on January 20 next.

With his April 11 order, however, the President pointed out that the four reorganization plans which he has submitted to Congress since passage of the act on April 3, 1939, do not exhaust the transfers, consolidations and abolitions that may be necessary and desirable. "Some changes that now appear to have merit require further study," he declared. "It is the responsibility of the President as Chief Executive to see that needed adjustments and improvements in administrative organization are made. But this he cannot adequately accomplish without proper statutory authority. The present Reorganization Act entirely exempts some twenty-one administrative agencies from consideration. Furthermore this Act expires on January 20, 1941.

"I strongly recommend the reenactment of the Reorganization Act, without exemptions. The structure and management of our government, like the activities and services it performs, must be kept abreast of social and economic change."

The President's four orders under the current act have involved many changes and shifts in departmental bureaus and independent agencies. A recapitulation of their effect upon the organization of federal conservation work shows that:

(1) Reorganization order number one, dated April 25, abolished the independent status of the Civilian Conservation Corps and transferred the Corps to the new Federal Security Agency. By this order the National Resources Committee also lost its independent status and became a National Resources Planning Board attached to the President's office.

(2) The second order was sent to Congress on May 9 and included a provision transferring to the Department of the Interior the Bureau of Fisheries from the Department of Commerce and the Bureau of Biological Survey from the Department of Agriculture. It also transferred the Mount Rushmore National Memorial Commission to the National Park Service in the Department of the Interior.

(3) Reorganization order number three involved no inter-departmental transfers of conservation agencies but provided for the consolidation of the Bureau of Fisheries and the Bureau of Biological Survey into one agency in the Department of the Interior to be known as the Fish and Wildlife Service. It abolished the offices of commissioner and deputy commissioner of fish-

eries and of chief and associate chief of the Biological Survey and provided that the functions of the consolidated agencies shall be administered under the direction and supervision of the Secretary of the Interior and by a director and not more than two assistant directors to be appointed by the Secretary.

(4) The fourth and last order, dated April 11, transferred to the Department of the Interior all activities of the Soil Conservation Service relating to soil and moisture conservation on lands under the jurisdiction of that department. These lands embrace some 225,000,000 acres included within the Indian reservations, the Taylor grazing units and the unreserved public domain. In support of this split of the soil conservation work, the President said in his message to Congress: "With respect to private lands, the soil conservation work of the federal government is primarily of a consultative character and can best be carried on by the Department of Agriculture through cooperation of the farmers throughout the country. In the case of federal lands, this work includes the actual application by the government of soil conservation practices and is an appropriate function of the agency administering the land."

Another item in reorganization number four indirectly bears upon conservation in that the Weather Bureau serves it in the field of forest fire prevention. By the order, the Weather Bureau—now in the Department of Agriculture—is transferred to the Department of Commerce. This, the President said, will permit better coordination of government activities relating to aviation and to commerce generally. The section, however, carries a proviso that the Department of Agriculture may continue to make snow surveys and to conduct research work in relation to weather and crops, weather and soil erosion and long-range weather forecasting.

Administration of the Naval Stores Act and of the Insecticide Act of 1910 would be retained in the Department of Agriculture, under number four, which transfers the Food and Drugs Administration to the Federal Security Agency.

The President's first and second orders have become effective. Orders number three and four under the terms of the Reorganization Act will not become effective until they have lain before Congress for sixty calendar days, unless during that period both houses pass a concurrent resolution disapproving them. As this issue goes to press, there are evidences that a fight may be made against these two plans, centering particularly around a section of the last order providing for the transfer of the Civil Aeronautics Authority to the Department of Commerce. Leader of this opposition is Senator McCarran of Nevada who has introduced a concurrent resolution to nullify both the third and fourth orders. His resolution was referred to the Select Senate Committee on Government Reorganization, where it is now pending.

THE GLAZE STORM OF 1940

By CARL G. DEUBER



Carl G. Deuber

Ice, forming in great masses on the numerous small twigs and branches of the elms, caused great damage, and made thousands of trees more susceptible to the deadly Dutch elm disease

THE icy blast that introduced March to the East this year appeared more like a vitrifying Jack Frost than the proverbial Roaring Lion. From Pennsylvania to Boston the entire landscape was coated with ice during the night of March 3 and through the following day. In some wooded areas the splitting and crashing of trees was reported as sounding like a major cannonading. Icy streets and roads were cluttered with the debris of branches that had snapped off—with entire trees that could not support the tons of ice that encased them. Partially ripped branches hung precariously in the tops of trees making traffic hazardous in many streets.

The scene was weird and ghost-like during most of March 4 as light rains and sleet fell from leaden skies.

As the late afternoon sun played on the crystal surfaces it became strangely beautiful. The following morning a slight rise in temperature dispersed the ice mantle and the extent of the destruction and mutilation of trees became evident. Since much of the area involved in this visitation of ice had been in the path of the 1938 hurricane, the plight of shade trees is of special concern.

The streets and roads were soon cleared and the power and communication lines rapidly repaired, but the aftermath of totally wrecked trees, great scars where large branches were wrenched off, plus the numerous smaller wounds and deformities, will require decades to efface.

This was a typical glaze storm—the glaze being caused by rain freezing as it fell. The ground, branches and



Carl G. Deuber

Only the great hurricane of 1938 has caused greater damage to trees in the East than the glaze storm of 1940. Heavy ice loads, accompanied by high winds, damaged 30,000 trees in New Haven, 95,000 in New York City

all exposed surfaces were at or slightly below the freezing point in temperature so that as the rain made contact with these cold surfaces it became ice. Twigs and buds were encased in ice from a half to two and a half inches thick. The needles of pines froze in large green clumps, bearing the ends of the terminal shoots down in hemi-circles. During most of the day on March 4, the temperature at New Haven, Connecticut, for example, did not vary more than two or three degrees above or below the freezing point. This caused a thickening of the icy layers and consequent crashing of more limbs.

The load of ice was the primary cause of damage to the trees. In some areas, however, high winds occurred, intensifying the effect of the ice load. Pliant birches bowed their tops and the uppermost twigs froze tightly to the ground. In many cases the trunks snapped off.

The pendulous branches of large elm trees were particularly vulnerable to the conditions that prevailed in this storm. Ice was applied in great masses on the numerous small twigs with buds that had already shown signs of swelling. This mechanical strain placed upon the upper branches exceeded their properties of flexibility and strength causing enormous numbers to be snapped off for lengths of six feet or more. Larger branches in various stages of decay were ripped off, long strips of bark being loosened for many feet down the trunk.

The silver and red maples suffered greater injury than the sugar maples. Norway maples were the most resistant of this group. This resistance is attributed to the compactness of the tree's crown and the relatively small surface exposed by the thick, mostly upright twigs. The catalpas also proved to be highly resistant because of small twig surface exposed.

The oaks, by virtue of the strength of the wood, were less damaged than elms and maples. But they did not entirely escape. Weaknesses due to decay played a sig-

nificant part in the breakage of large branches of various oaks. Also they were subject to the crashing of branches of neighboring trees. The tulip tree, as well as poplars and willows, suffered severe injury.

The conifers in general were not as severely damaged as the hardwoods. Many of the ornamental arbor vitae and junipers appeared to escape serious injury because of the compactness of their foliage and flexibility of stems. Upper branches bent downward and froze to lower branches, thus receiving a measure of support within themselves. Spruces withstood the ice remarkably well. Plantations of white pine of about twenty-five years of age were badly injured by the terminal shoots snapping off from four to six feet below the bud.

Early reports pictured the loss and mutilation of trees as a result of this glaze storm as greater than that of the havoc wrought by the 1938 hurricane. It would seem that this might apply to those sections that were not in the direct path of the hurricane. In Connecticut, for example, the eastern half of the state suffered most during the hurricane, but in the glaze storm the western half was most severely affected. The glaze storm easily rates second to the hurricane in its extent, disruption of public utility services and tree damage in the East.

In New Haven it was estimated that 1,000 trees would require removal and up to 30,000 would require immediate trimming of torn branches. In New York City the most severe damage was in upper Manhattan and the Bronx with 95,000 trees requiring attention.

The shade tree departments in the stricken areas are hard at work removing split and badly damaged trees. Expert climbers are working through the tops of trees cutting back broken branches to sound crotches so that vigorous cambial tissue can (Continuing on page 235)



Carl G. Deuber

The most serious consequence of the storm is the danger of insects and diseases attacking the wounded and weakened trees. Tree experts are therefore rushing every possible protective aid

EXPLORING HELL'S CANYON

Deeper Than the Grand Canyon of the Colorado, This Mighty Chasm of the Snake River, Now Being Considered as a National Park, Challenges Men of Nerve

By A. J. COATS

Photographs by the Author

HELL'S CANYON of the mighty Snake River, which borders Idaho on the west, has recently been re-discovered after being "lost" for 125 years. This deepest chasm on the North American Continent which "beggars both the pencil and the pen," to use the words of the intrepid

Captain Bonneville, who first viewed it in 1833, is under consideration by the Department of the Interior as a national park. At the same time the Idaho and Oregon State Planning Boards have completed surveys of the region and are expected to make recommendations concerning its future. All of this brings Hell's Canyon and the Seven Devils Mountains which tower above it back into public focus.

This mighty canyon of the "accursed mad river," as the early French described the Snake, was made known to the world by Robert Stuart of the John Jacob Astor exploring party in 1812.

"The whole body of the river does not exceed forty yards in width and is confined between precipices of astonishing height," he wrote. "Cascades and rapids succeed each other, almost without intermission. . . . Mountains here appear as if piled upon mountains, and after ascending incessantly for half a day, you seem as if no nearer to the attainment of the object in view than at the outset."

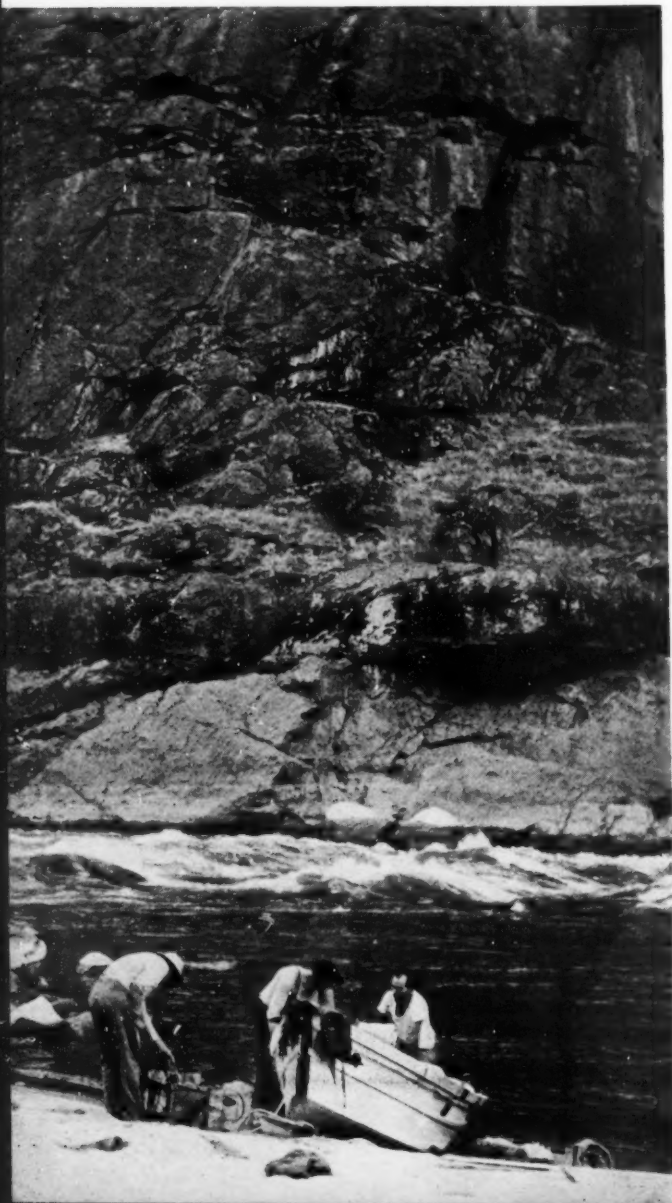
Twenty-one years later, Captain Bonneville, viewing the canyon from the heights of the Seven Devils, which tower 7,900 feet above the river bed, recorded:

"The grandeur and originality of the views presented on every side beggar both the pencil and the pen. Nothing we have ever gazed upon in any other region could for a moment compare in wild majesty and impressive sternness with the series of scenes which here at every turn astonished our senses and filled us with awe and delight.

"At times the river was overhung by dark and stupendous rocks, rising like gigantic walls and battlements. These would be rent by wide and yawning chasms that seemed to speak of past convulsions of nature. Sometimes the river was of glassy smoothness and placidity, and at other times it roared along in impetuous rapids and foaming cascades. Here the rocks piled in the most fantastic crags and precipices and in another place they were succeeded with delightful valleys carpeted by greensward. The whole of the wild and varied scenery was dominated by immense mountains rearing the distant peaks into the clouds."

So, knowing well the canyon's intriguing history, its century-old challenge to men of nerve, and, of course, its grandeur, I immediately responded to the invitation of a group of friends to "shoot Hell's Canyon with us." The

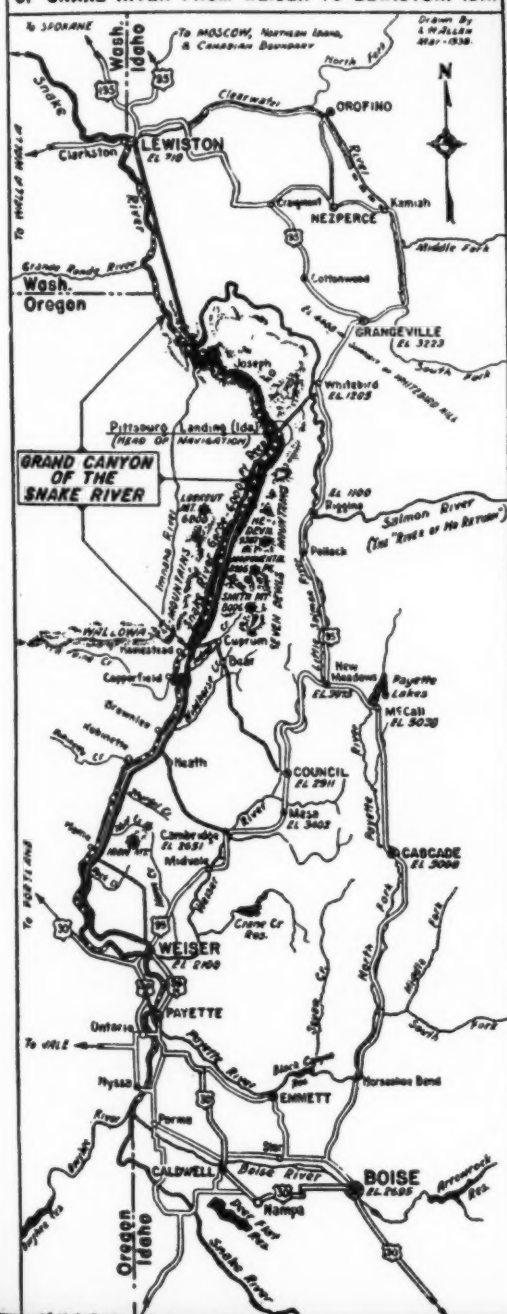
Bringing the boat ashore after shooting one of the five hundred rapids in Hell's Canyon



The mighty Snake River has carved its bed through mountains of lava, basalt and granite in Hell's Canyon



ROUTE OF PROPOSED HIGHWAY DOWN GRAND CANYON OF SNAKE RIVER FROM WEISER TO LEWISTON, IDA.



primary object of the trip was to determine the practicality of constructing a north and south water level, all year highway. Such a road would be of incalculable worth as an outlet for heavy tonnage of both agricultural and mining products to the south and to the West Coast. Paralleling the Pacific, it would also be a military highway of immense strategic value, well worth the estimated construction cost of \$12,000,000.

The expedition leader, R. J. Wood, a civil engineer, designed a boat especially for our adventure. Heavy Idaho white pine and plywood were used in construction of the eighteen foot craft, which had a beam of five feet and side walls of two feet. The open cockpit was large enough for only the oarsman and two others. The decks, forward and aft, were housed over, making airtight compartments for storage of food, camera supplies and camp equipment.

Second in command was Orren McMullen, chief navigator and guide, a 240-pound super-man who had twice before made the trip. His skill and strength more than once saved us from a tragic ending. Lyle Stanford, a scientist engaged in research work on the flora and fauna of the Snake River Valley, was head cook. Frank Pfeiffer, athlete and swimmer, piloted a small twelve foot boat we carried in event that disaster overtook the larger one. Horace Parker, sportsman and writer, held the position of handyman. My duties consisted of fishing, eating, and sweltering in 120 degrees of continuous heat. The canyon is well named.

After christening our boat "Hell's Canyon," we shoved off near Red Ledge Mine, below Weiser, Idaho. Little did we realize the many hazards we were to encounter during the next six days. For the first few miles we drifted leisurely with the current, but ahead were foreboding canyon walls reaching to the sky. From our worm-eye view the spectacle appeared as though the accumulated static of a million years had at one time rent a gash through the very heart of the Rockies, leaving in chaotic confusion a debris of basalt and granite. Into this thirsty throat of hell we were drawn by the increasingly powerful current of the mighty river. The roar of "white water" gave warning that our first major rapids were just ahead. What a thrill! High canyon walls on either side, and our craft gathering express train speed!

With powerful strokes Mac turned the boat's stern down stream while the crew clambered to the bow which pointed up river. This maneuver placed the foregoings end of the boat high and offered much better control.

Soon we were in the midst of boiling rapids, plunging and pitching helplessly from the crest of one massive wave to another. Often the boat literally stood on end, or spun in treacherous whirlpools; then again it seemed doomed to certain disaster as we swept by ugly boulders and projecting canyon walls. Near the lower end of the rapids we encountered numerous "boils," where the river churns in geyser-like activity, radiating sparkling cascades in all directions.

Frequently at a bend of the river we encountered whirlpools of various size, veritable "glory holes." The waters from these eventually come welling to the surface with a force sufficient to send our boats coasting sidewise for a distance of twenty yards. Whirlpools and "boils" were among our greatest hazards, and it was due only to skilled boatmanship and constant vigilance that no casualties occurred.

Through the canyon's length there is an average fall of about twelve and one-half feet to the mile. Engineers have estimated that over eighteen billion kilowatt hours of potential energy are idling here for man to some day harness.

Down where the canyon begins to widen out, the main Salmon, "The River of No Return," pours into the Snake a large volume of water from central Idaho's extensive watersheds. On the Oregon side the noisy Innaha comes crashing in, and still farther downstream but northward is Washington's tortuous Grande Ronde.

New and interesting sights confronted us at every turn. Forest fires were raging along the Washington side. Rounding a bend there appeared a whole mountain ablaze—a mass of flames even to its summit. In the higher forested portions were wind-blown "crown" fires consuming every inflammable thing within reach, and traveling at a rate of speed no man could outrun. On the tinder dry lower slopes were many "spot" fires, each devouring from fifty to one hundred acres of valuable timber. Still lower were numerous brush fires.

Through a smoky haze which had settled over the river, there suddenly appeared a spectre. Scattered and waist deep in water stood about twenty fire-fighters—grim, silent, exhausted men. Farther out in the river was a pack string of some twenty frightened horses and mules, all driven there by the intense heat. In the background nestled a tiny ranch-house which, with other farm buildings, was being rapidly consumed by the flames. And still beyond was a lone horseman inspecting the charred ruins of an orchard. High above this inferno circled a forest fire patrol plane.

Our favorite outdoor sport was shooting the 500 or more rapids. Each carried its own thrill and unique hazard. Near tragedy awaited us at Water Spout Rapid. Here a huge wave swept one of the crew into the swift,

swirling water. He seized the foot of his companion, who had grasped a life rope and was tenaciously clinging to it. Destruction seemed inevitable as he struggled against undertow, high waves, and projecting rocks. Grim Death and Lady Luck, omni-present passengers throughout the trip, fought desperately for the life of this fellow, and it was only after battling to the very end of the rapids that Lady Luck was victorious. Her trophy was a badly battered and water-logged man.

Sheep Creek Rapids at the head of navigation was the last dangerous water to negotiate. After shooting the rapids, we waited several hours for the mail carrier with his staunch twin-motored boat. Once a week this intrepid riverman battles upstream to bring mail into this sparsely populated area. Probably in no other place in the United States is mail delivered in the presence of so many hazards.

It might also be well to mention here that each spring and fall sturgeon fishing lures scores of men into the canyon as far as they dare venture. This largest of fresh water fish, native to the Snake River, is found almost nowhere else except in a few Russian streams. At one time the sturgeon was thought to be migratory in habit, working up from the Pacific Ocean by way of the Columbia River, as do the salmon, but recently it has been classified as non-migratory. These fish grow to immense size ranging from five or six feet in length up to twelve or even fifteen feet. A hundred pound fish is small, while two to four hundred pounders are average, and the record catch was over 900 pounds. Tons of sturgeon have been taken from these waters until now the species is becoming extinct. Fortunately, the state has just this year closed the Idaho side of the stream for an indefinite period, and it is hoped that Oregon will effect a similar law.

Only volumes could adequately depict the astonishing grandeur of this deepest gash in the North American continent. Robert Stuart and Captain Bonneville both graphically described small portions of the canyon which met their vision. They also traveled through vast forests of lodgepole pine, Douglas fir, spruce and tamarack, and now and then an entire mountain slope of gigantic ponderosa pines.

Tradition holds that not more than forty people have successfully navigated the 189 miles of canyon. We journeyed the whole distance by boat, except for short stretches where we "lined" through treacherous boulders or impossible rapids.

No rivalry can ever exist between Hell's Canyon of Idaho's Snake River and the Grand Canyon of the Colorado. They are vastly different. Colorado's Grand Canyon, with its gorgeous color, will continue to be a Mecca for nature-loving sight-seers. Hell's Canyon, 1,800 feet deeper and five miles narrower, will hold its secrets and inaccessible treasure of minerals until that day when the envisioned highway will extend the canyon's length. In the meantime, other men may accept the river's challenge to sense the superlative adventure of a lifetime.

RIDE WILDERNESS TRAILS

If you are planning to ride with one or more of the eight expeditions organized for the summer of 1940 by The American Forestry Association for its Trail Riders of the Wilderness, write now for details.

The first expedition is scheduled to leave Asheville, North Carolina, on June 17 for nine days in the Great Smoky Mountains. The second will leave Sun Valley, Idaho, on July 15 for fourteen days in the Sawtooth Wilderness. Two expeditions will get under way on July 18, one, for thirteen days, in the Spanish Peaks Wilderness of Montana, from Bozeman; the other, for fourteen days, in the Wind River Wilderness of Wyoming, from Lander. On July 29, riders will gather at Silver City for a thirteen-day trip in the Gila Wilderness of New Mexico, while on August 2, the first of the two fourteen-day Colorado trips will get under way from Glenwood Springs, exploring the Maroon Bells-Snowmass Wilderness. The other Colorado trip, beginning on August 18, will explore the White River Wilderness for fourteen days. Then on August 23, the fourteen-day trip in the Kings River Wilderness of California will get under way from Bishop.

THE HOLY FOREST OF HAGUENAU

By

SEYMOUR HOUGHTON

Photographs by the Author

IN NORTHERN Alsace between the Vosges Mountains and the Rhine River lies the Holy Forest of Haguenau, as it used to be called during the Middle Ages when hermits found there the calm and security denied them elsewhere in turbulent Europe. Haguenau is a town forest. In the Old World a large percentage of woodland has been owned by different towns since the earliest times. Actually, one fifth of the present forest area of France is held communally.

The situation in America is entirely different. However, it must be admitted that we are beginning to understand the value of these local revenue



The famous Maginot Line cuts a swath through the town forest, which has been in the foreground of European events for centuries. The old oak pictured above was the home of a hermit 800 years ago



From the steeple of this old Church at Haguenau, fire wardens have watched over the forest, — now only slightly smaller in area than during the Roman occupation of Gaul — for 500 years

producers. Certain villages are now following the example of Newington, New Hampshire, which has owned and successfully operated a town forest since 1710.

The forest of Haguenau, which has had a long and interesting history, once again finds itself thrust into the foreground of European events, often the case in past centuries, as it stands near the present Franco-German frontier. The famous Maginot Line cuts a swath through its very midst. This fact is sufficient reason to fear that should the present conflict develop along the western front Haguenau would be one of the first objectives of the enemy canon hidden only a few miles away on the right bank of the Rhine in Germany.

Still one of the great forests of western Europe, its wooded area is approximately 47,500 acres. This is divided into the main forest, comprising 34,000 acres, joint property of the French State and the City of Haguenau, into privately owned woodland, certain small communal forests and others belonging to public institutions such as the Charity Hospital founded in Haguenau during the Middle Ages.

An interesting fact about the forest is its present size, which is only 10,000 acres smaller than during the Roman occupation of Gaul. Today fifty towns and villages border on the woods and at least one half of these were inhabited at that early time. Thus, situated in the open, level valley of the Rhine, completely surrounded by tilled land, the forest has withstood successfully all attempts to destroy it, if any were ever seriously considered, and this in one of the most densely populated regions of France. At present there are 260 inhabitants to the square mile here, whereas the average elsewhere in France is only 195.



Fifty towns and villages border on the forest, half of which have been inhabited for 2,000 years



Although Haguenau was once a great oak forest, only half of its area is in oak today. The other half is in pine



The home of a forest warden in the ancient woodland, where regulation dates back to the middle ages

Evoking the Roman occupation takes us back a mere 2,000 years, or the space of time for which there is a written history of Alsace. Evidence abounds in the numerous prehistoric funeral mounds scattered about the forest and in the collection of prehistoric objects housed in the museum of Haguenau to prove that this section of Europe has been inhabited by man since the Stone Age, or for many thousand consecutive years.

At one time property of the Imperial Roman Government, the forest later passed into the hands of the Frankish kings. After the breakup of Charlemagne's empire and the conquest of Lotharingia by Louis the German in the ninth century, Alsace with this forest was attached to the Duchy of Swabia, which belonged to the famous Hohenstauffen family. One of its members, Barbarossa, became emperor of the Holy Roman Empire in 1152 and a few years later, in 1164, he made Haguenau a free city. In the sixteenth century this region passed into the hands of the House of Austria, who ceded it after the Treaty of Westphalia, in 1648, to France, whose property it remained until the disastrous war with Prussia deprived France of Alsace and most of Lorraine. The more recent events in its history, since the World War, are still too fresh in our minds to need to be recalled.

Forest laws, or *coutumes*, as they were known, used to be granted at Haguenau by the rulers of the country to the different villages and convents. One of the earliest to be noted by an official act was signed in 1106 by the Emperor Henry V, who accorded to the convent of Walburg the right to graze its herds of pigs in the woods. In 1352 the first real forest legislation was passed to regulate the cutting of oaks, birches and other productive trees. However, there was no mention of the pines which today cover more than one half the wooded area. The right to gather firewood remained free to the inhabitants, except that no one was permitted to carry away more than one wagon load at a time.

It is curious to note that during the middle Ages the felling of oaks was strictly limited, as most of the revenue derived from Haguenau came from leasing the rights to fatten herds of hogs on the acorns abounding under the many oak trees. At this time timber could only be disposed of locally and as most of it was given away free of charge, it brought in very little income. Lack of roads made it costly and difficult to transport lumber, even if a suitable market had existed, which was rarely the case. It was not until much later, during the seventeenth century, that the Dutch came into the region to buy oak for the construction of their many vessels needed to fight the British on the high seas.

In 1435 the forest laws were revised by mutual consent of the local representative of the Roman Empire and the Senate of the free city of Haguenau. These remained on the statute books for more than 200 years, or until the French promulgated the code of 1669.

The policy of the French foresters at the end of the seventeenth century was to rationalize the utilization of all the forest resources. Henceforth they alone retained the right to cut wood, although the citizens of Haguenau continued to receive lumber for their personal needs. This at first caused grave disorders and revolt among the inhabitants, who had always considered the forest their own property. Before this time they had never been prevented from cutting timber where and as they liked.

In order to quiet the fears of those who thought that this new policy had been adopted to dispossess them of their rights, Louis XIV, in 1696, issued a decree acknowledging the joint ownership of the forest by the city and by the state. This order in council confirmed officially under French law a situation that had existed for centuries under the Holy Roman Empire. Haguenau was and is today the only forest in France benefiting from joint ownership. The King decided also that the state should administer the forest and that the city should pay all the expenses incurred, such as salaries and equipment, as well as one half the cost of cutting and getting out the lumber, the other half to be paid by the state. These conditions prevail today.

Through the rational cutting of timber the yield was doubled between 1720 and 1770. As new markets were being continually created, it became a simple matter to dispose of all the lumber produced. In 1843, and again in 1873, under the Germans the forest was entirely surveyed and divided into sections as they exist at the present time.

Oaks and other hardwoods suffered considerably at Haguenau during the German occupation from 1870 to 1918. The Germans frequently cut them without any apparent thought for the future; while in replanting they too often preferred the fast growing spruce, with which they were very familiar. They were thus assured a more rapid return for commercial purposes than would have otherwise been the case, but the hardwoods were certainly the sufferers.

Fire is, of course, always a danger that has had to be combatted here on many occasions. So closely is the city's prosperity linked with that of the woods that the local fire department is held ready at all times, especially during the summer, to go in and cooperate with the forest fire fighters.

A most unique system of wardens watches over the (Continuing on page 235)



The right to gather firewood — one load at a time — has remained free to the inhabitants of the forest since 1352



The law of 1875 regulates the cutting of timber today in the Forest of Haguenau — not more than 21,000,000 board feet a year

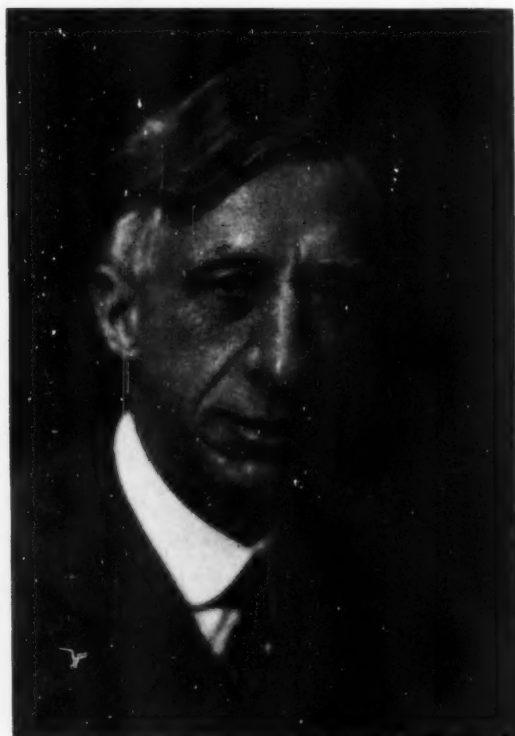


Although a town forest, the State cuts the timber and sells it at auction. About 350 men are employed for this work

FORESTRY LOSES TWO VETERANS

TWO veterans of forestry, E. A. Sherman, assistant chief and advisor of the federal Forest Service, and C. S. Chapman, chief forester of the Weyerhaeuser Timber Company, have been claimed by death. Mr. Sherman died from a heart ailment on March 28 at his home in Washington, D. C., at the age of sixty-nine. Mr. Chapman also was stricken with a heart attack and died suddenly on April 2 at Tacoma, Washington. He was sixty years old.

Development of the Weeks Law purchase program for the national forests, particularly in the eastern part of



E. A. SHERMAN

the country, and land exchange procedure are attributed largely to the efforts of Mr. Sherman, who this year rounded out thirty-seven years in forestry work for the federal government. More than 17,500,000 acres of land have been purchased under the Weeks Law and nearly 2,000,000 acres have been brought into national forests through land exchanges or by exchange of government stumpage for cut-over or similar lands.

"Edward A. Sherman was an outstanding public official, known within and without the Forest Service for his important part in the development of the nation's forestry program," said Earle H. Clapp, acting chief of the Forest Service. "His personal knowledge and inspections of every one of the 161 national forests in the country gave him an immeasurable store of knowledge of great value. His wide experience and devotion to the principles and ideals of forest conservation made him

one of the most valuable men of the Forest Service organization. His duties have included the handling of many of the most important special projects in the Forest Service program, and his work in classification of national forest lands and establishment of national forest boundaries was particularly outstanding."

Mr. Sherman was a native of Iowa and graduated from Iowa State College of Agriculture and Mechanic Arts at Ames, in 1896, with a B.A. degree, and an M.S. degree in 1927. The honorary degree of Doctor of Sciences was conferred upon him by his Alma Mater in 1928. He entered government forest work in 1903, serving as supervisor in the General Land Office, and in 1905 became a member of the Forest Service when it was established in the Department of Agriculture. In 1920 he was made associate forester and became assistant chief and advisor in 1935. He was a Fellow of the Society of American Foresters.

Mr. Chapman was one of the best known foresters in the Pacific Northwest, having served as chief forester for the Weyerhaeuser Timber Company for sixteen years. Prior to that he was chief forester for the Oregon Forestry Association and was at one time regional forester at Portland, Oregon, for the United States Forest Service.

A native of Connecticut, Mr. Chapman was graduated with the degree of B. Agr. from Connecticut Agricultural College at Storrs. Later, in 1902, with the first forestry class to be graduated (*Continuing on page 238*)



C. S. CHAPMAN

AMERICAN FORESTS

EDITORIAL



BREAKING THE FOREST DEADLOCK

THE Little Orphan Annie phase of forestry crusading has passed. Informed persons no longer believe that the timber famine goblins will get us if we don't watch out. The ghosts of forest scarcity have been driven from the woods by the forest survey and its accumulation of facts about our remaining timber supply, its current growth and drain. These facts are broadly reassuring and drive home that the time has come to have done with controversy and to move forward in completing a national program of forestry that in its larger outlines will have the united support of all forest interests, public and private.

Certainly progress on a wide front turns upon that achievement. For too many years forestry in terms of a national program has been water-logged between crusading of the past and controversy of the present. Different forest interests have remained locked in argument over this or that phase of program policy until forestry to the lay public at least has become pretty much a confused picture of all trees and no forests, all controversy and no agreement. No wonder so many people have turned their interest and support to the simpler and less complicated movement for parks and complete preservation.

Two years ago, the President of the United States asked Congress to appoint a Joint Committee on Forestry to try to break the controversial deadlock. During two years the members of this committee have turned from time to time away from more pressing tasks to study the forestry problem in its national aspects. Now the committee has decided that the task of digesting the great mass of testimony taken and of recommending new legislation to Congress requires more time. So we may not know for another twelve months whether the committee has an answer to the nation's forest stalemate.

But whatever may be the committee's ultimate findings, we believe it already has made a distinct and significant contribution to the situation. Serving as a common screen upon which all interests could throw their views, it has brought into focus not only the major parts of a needed national program but major differences of opinion as to how these parts should be forged into a program of the whole. And the significant and hopeful thing in this focusing process is the revelation that the forest interests, in spite of the thunder-rumbling clouds that have hung over them these last few years, are not so widely apart after all.

A review of the testimony given the committee by rep-

resentatives of forest industry and those of the federal government shows that both groups are pretty much in agreement on all major policies. Differences lie in methods and extent of application. Even on the question of public regulation of private forest operations which has long been the spear-head of controversy, there seems to be common acceptance of principle, and difference only in detail of application. Both accept public controls provided they are developed and exercised through the states. The Forest Service, however, holds that if the states within a reasonable period do not put into effect local regulations sufficient to keep forest land productive, the federal government should be authorized to step in and do so. And it would condition federal aid to the states upon regulatory action by the states. Although the record of the hearings is not clear, the industry, one concludes, is opposed to federal pressure that will force action by the states or will ultimately open the door to direct federal regulation.

Having brought years of forest controversy and disagreement down to this major difference, the committee has set the stage for closing the breach and forwarding the national program upon a commonly accepted course of action. The views of both industry and the Forest Service represent compromises of past positions and are encouraging evidence of a desire at long last to free the forest question of its controversial shackles and to make orderly progress. It would appear that only a little more give and take is needed to effect this end. If the industry on its part would accept the proposition that federal financial aid for forest protection, reforestation and management benefiting private forest owners be made contingent upon satisfactory guarantees that forest devastation will cease and private forests will be handled by practices that assure continuous forest growth; and if the Forest Service on its part would accept trying out for a period of five or ten years regulation through the states without provision for federal step-in, the whole forestry program could at least move forward.

Nothing would be lost by such a resolution of differences. If at the end of five or ten years, or whatever period might be agreed upon, enough states have not put into effect regulatory controls to assure satisfactory progress, the question of direct federal participation could then be taken up and considered in the light of results shown and experience gained. It is better to make progress slowly than not at all.

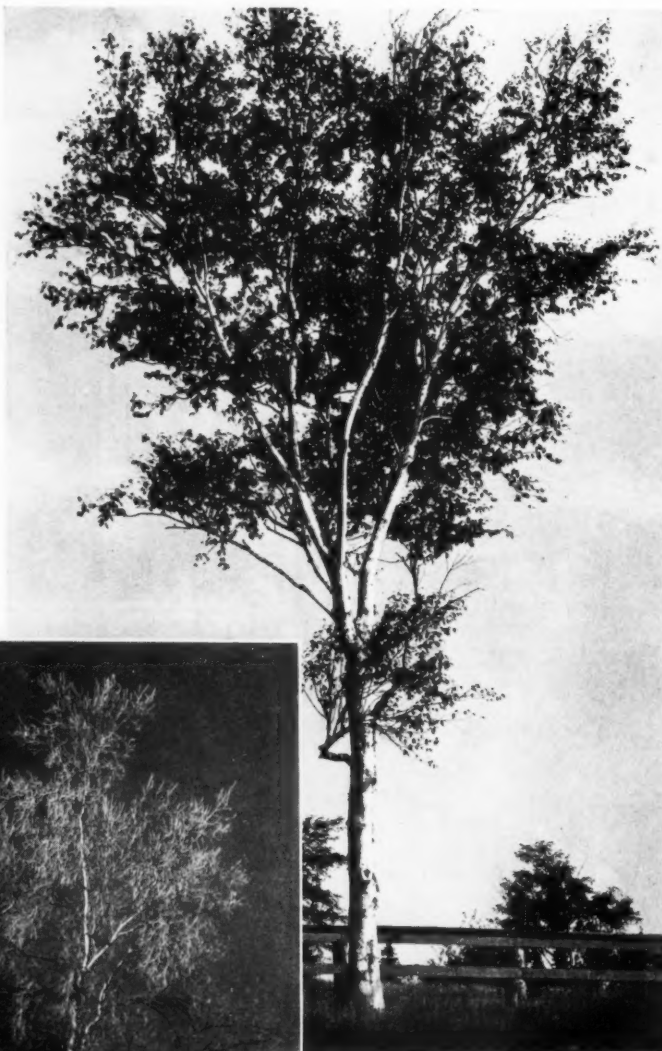
PAPER BIRCH

Betula papyrifera, Marshall

By G. H. COLLINGWOOD

SINGLY or in clusters, the creamy white stemmed and open crowned paper birch—bright green in summer and lacey in winter—prefers moist, rich soil but grows on a variety of sites from northern New Jersey to Iowa, through Minnesota, and north to the limit of tree growth below the shores of Hudson Bay, into Labrador and Newfoundland. It is the most widely distributed of the world's thirty varieties of birch. Trees reach sixty to eighty feet and two to three feet in diameter, but are usually smaller. With age the crown becomes broad and open with few large limbs, many horizontal branches and flexible twigs.

The simple, irregularly double toothed, abruptly pointed, oval leaves with broad bases grow alternately from smooth reddish brown twigs. They are two to



Devereaux Butcher

Gleaming white bark and an open crown with small branches and many flexible twigs distinguish paper birch throughout the seasons



A. H. Ballantine

three inches long, one and a half to two inches wide, bright green above and lighter beneath with warty glands along the main veins.

Slender brown, tassel-like male flowers three to four inches long hang in twos and threes from the twig ends in April or May. Back from these and nearly erect are short greenish female cones. By autumn these ripen into cylindrical, short stalked, loose, cone-like



Devereaux Butcher

The irregularly toothed leaves are two to three inches long, while the short stalked seed cone is an inch or more long

fruits packed with thin heart shaped discs to which tiny, oval seeds are attached. Millions of seed are released annually to germinate on exposed mineral soil such as old burns. Thus many available openings are captured and paper birch is one tree that covers more area than when America was discovered.

On young trees and older branches the chalky lustrous white bark peels easily and may be separated into paper-thin layers marked with horizontal lenticils or breathing pores. On the copper colored inner bark these raised slits are bright orange. With age the outer bark rolls back in irregular, frayed, horizontal sheets and the blotchy blackened lower trunk develops increasingly deep fissures. Early explorers adopted the arts of the northern Indians by using this bark for canoes, as well as for receptacles in which to store or carry food. The modern tendency to strip it is often fatal to the trees and always disfiguring.

The scientific term *papyrifera* describes the paper like bark, while *betula* is the Latin name for birch. It closely resembles European birch, *Betula alba*. With its pendulous variety this is harder than *Betula papyrifera* and was adopted as the "Mothers' Tree" in 1923. So named it is increasingly planted throughout the northern and central states on Mothers' Day in May.

The close grained, hard, fairly tough heartwood is light brown tinged with red, while the thin sapwood is nearly white. When air dry a cubic foot weighs about thirty-seven pounds. It works readily but is not durable in contact with the soil. It is used for spools, clothes pins, tooth picks, shoe pegs, shoe lasts, novelties, turnery, and for wood pulp and fuel.

Some 3,000,000,000 board feet of commercial paper birch supply an annual crop of approximately 50,000,000 board feet. "Red heart" frequently reduces the usefulness of one-sixth the mature stand. Trees may reach sixty to eighty feet with diameters of nine or ten inches in sixty-five years, but seldom live beyond 150 years. Occasionally in pure stands, paper birch is usually in mixture with white pine, red pine, red spruce, aspen and yellow birch.

Especially attractive when planted in combination with evergreens, those grown south of its natural range are usually killed by borers. The thin bark is easily penetrated by grass fires, but stump sprouts often temporarily restore the burn.



In early spring twigs bear long dangling staminate blooms with shorter nearly erect pistillate cones



Devereaux Butcher

Horizontal lenticils and dark blotched scars mark the fraying white bark with under layers of orange



Natural range of Paper Birch

MODERN MAINE LOG DRIVE

By STEWART H. HOLBROOK

FOR more than half a century it has been common talk in the lumber industry that the State of Maine had been "cut out"; that the loggers had moved into the Lake States, mowed down the timber there, and then moved on to the West Coast. The spruce and pine of the Pine Tree State, it was said and believed, was but a memory.

Thus it was a pleasant if startling sight to this writer when he saw, in June of 1936, the graceful if sometimes wicked Saco River well filled for more than a mile with some 6,000,000 feet of quite respectable white pine logs.

They were not big logs, as western pine logs go, but they would average ten inches at the top; and they were large enough for Saco rivermen—catty lads all—to ride them wide and rugged through white water and green.

That this river drive was real news became evident when the city editor of Portland, Maine's, largest newspaper asked me to write a story about it. Furthermore, he sent a photographer along, lest skeptics doubt the written word.

And there they were, an expanse of fast white water, with dark eddies here and there; and more than thirty rivercats, great-great-grandsons of the original river drivers, still poling logs down the Saco. It was a sight to gladden the heart of any one brought up in the tradition of the woods. Here, after more years than the oldest living citizen knows about, were logs going down-river to Biddeford in the same manner they did in Revolutionary times. And the logs were white pine, the same tree that appeared in replica on the State of Maine's original flag.

Sitting on a big rock in the Saco, I watched the lads at work. They seemed younger to me than did men I had seen years ago on the nearby Connecticut, but there was just as much beautiful cursing, the peavies clanked just as loud, and when one of the cats went down into swirling white water up to his chin, there was a mighty yell of ridicule. The fellow had "drown-ded his peavey."

The young river foreman was Merle Cunningham, of Gorham, who has spent all the working years of his life in the Maine woods and on Maine rivers. His father, Asa, a rugged man in his sixties, is a veteran of fifty spring drives on a score of rivers, and he was boss of the Saco drive in 1936.

The senior Cunningham told me that a long-log drive on the Saco wasn't news at all; it was just that those city-folk down in Portland—thirty-five miles away—didn't keep up with the times. For sixty-one years one firm of Biddeford has had an annual drive of long logs on the Saco, and the thing had been going on for probably 150 years previously.

The Saco drive in 1936 was cut in the Fryeburg district, and there'll be larger

ones in the years to come, Asa Cunningham told me. Six million feet of lumber isn't a great deal, to one who has been at Lewiston, Idaho; Klamath Falls, Oregon; and Longview, Washington, but the marvel of it is that there are any long logs at all in Maine.

"Timber's been growing right along all these years," Mr. Cunningham said, "and this stuff we are driving is small compared with the spruce timber that was cut in the Rangely district last winter and is going down the Kennebec this summer."

I asked the veteran woodsman about the men who follow the woods these days; they looked pretty good to me.

"They ain't much like their grandads

Ann, these late years, although we've got the whole rigging at home. It's cheaper to board the men at farms along the river. The flood played heck with us this year and scattered the sticks all over. That's why we're late. These logs were rolled in on April 15, and we won't get 'em to the mill till mid-August. But I ain't blaming the men for that—even if they do smoke cig'rets. Nature was agin us this season.

"No, it ain't much of a drive, but I suppose we ought to feel good that we've got any drives left in Maine—the way those old-timers went at it. But pine is a tough and hardy tree. Wherever any seedlings were left at all, pretty soon along come a small forest.



White pine logs still move down the Saco River in Maine

were," he said, "Most all of 'em are cig'ret smokers; hardly a chewer of honest plug in the lot. Oh, yes, they get the logs down, but they don't have the spirit and the pride in it that we used to take.

"Why, I've stood on a street corner in Bangor and in one morning hired anywhere from 200 to 400 men—rivermen every one of them, and sent them up-river to the drive. And those lads never left the jobs until the drive was in, maybe two, maybe three months afterward.

"Today it's different. A riverman ain't proud to call himself such any more; and these lads won't average a 'route' of more'n three weeks at a stretch. Then they have to go to town. All you got to know about them is that they smoke cig'rets."

"We don't carry a wangan, a Mary

"And let me tell you, what forest we got left in Maine, we're taking care of it. Of course, the woods is full of city folk—fishermen, hunters and whatnot—every year, but there's rangers and wardens a-plenty these days and we don't have the bad fires I can remember of."

The water raced and gurgled around us and the logs kept up a booming as they rumbled together and over rocks. The sun was getting low, however, and presently there came a long "Waahooooo," a regular moose-call of a noise. It was the bullock, or somebody, announcing 5 o'clock. The lads came ashore with clanking peavies, and your correspondent had seen something that few people—even right there east of Boston—know is going on, a long-log drive in the venerable State of Maine.

New Conservation Organization Formed

At an initial meeting held in Washington on March 22, a new conservation association was formed to be known as Friends of the Land. Its stated purpose is a non-profit, non-partisan organization for the conservation of soil, rain and man. Morris L. Cooke, of Philadelphia, former head of the Rural Electrification Administration, was elected president, and Charles Collier, son of Commissioner Collier of the Bureau of Indian Affairs, was named as executive director.

About fifty men prominent in soil and other fields of conservation participated in the organization meeting. Among them were: Rexford G. Tugwell, former Assistant Secretary of Agriculture; Stuart Chase, economist and author; J. Russell

Smith, professor of Economic Geography at Columbia University; Dr. Paul Sears, author of "Deserts on the March."

The association will publish a magazine and engage in other lines of educational work. Russell Lord has been named editor of the magazine which will appear under the name *The Land*. It is expected that the first number will be issued in July.

Vice-presidents were named as follows: J. N. Darling, of Iowa; Charles E. Holzer, of Ohio; George A. Condra, of Nebraska; Aldo Leopold, of Wisconsin; J. S. Apperson, of New York; O. U. Habberstad, of Minnesota; David K. E. Bruce, of Virginia; J. E. Knoll, of Missouri; D. P. Fabrick, of Montana; and F. S. Hurd, of Oklahoma.

CCC Observes Seventh Anniversary

President Franklin D. Roosevelt on April 5 led the nation in celebrating the seventh anniversary of the founding of the Civilian Conservation Corps. In a message to James J. McEntee, newly appointed director of the Corps, the President said:

"How proud we should all be of the splendid record achieved by the CCC during its first seven years.

"Please extend to all who celebrate the anniversary with you on April 5 my hearty felicitations and warmest personal greetings. I am deeply impressed by figures I have been shown which tell the story of CCC. It is a fine thing that in excess of 2,400,000 young men have been enrolled in some 4,000 separate camps.

"Best of all is the fact that, while enjoying the advantages of security, discipline and a well ordered life, these youngsters have planted more than 1,700,000 trees; have constructed more than 100,000 miles of trails and minor roads; have built 75,000 miles of telephone lines and spent more than 5,000,000 man-days fighting forest fires. All these fine things speak eloquently of the value of CCC to every community in which it operates and to the nation as a whole which is made better and stronger by its activities.

"I hope through long years to come the CCC will be the happy medium of dual service to American youth and to the American nation."

Speaking for the CCC, Director McEntee thanked the President for his message. "Your letter is another manifestation to the enrollees and those charged with the administration of the Civilian Conservation Corps program of a continuation of your interest in the operation of the Corps," he said. "Since you inaugurated the Corps back in 1933, the enrollees have built up a splendid reputation for service and have justified your faith that if given an opportunity these young Americans would accept the chance to work their lives out of the chaotic condition in which youngsters found themselves in the depression years of 1933 and 1934. The CCC appreciates very much the expressions contained in your com-

munication."

A series of dinners celebrating the birthday of the CCC were held throughout the nation on April 5. At Washington, D. C., members of Congress, government officials and conservation leaders joined with officials of the CCC in observing the anniversary. Speakers at this celebration were Representatives Jed Johnson of Oklahoma, and James G. Scrugham of Nevada, CCC Director McEntee, Fred Morrell, of the Department of Agriculture, and C. M. Granger, of the Forest Service.

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"The Apostle of the Tree"

(Continued from page 204)

were saved for the manufacture of various products. Senor de Quevedo then introduced the turpentine and rosin industry, using modern methods by which the life of forest-trees are prolonged. Strict supervision over the timber industry followed, and only those trees marked by an experienced forester are now cut for marketing.

In the meantime, this versatile man had been working along other lines for the good of his people. Their living conditions must be bettered if they were to fully enjoy the land that he was trying so desperately to save for them. He became vitally interested in hygiene and social sciences, and, in 1900, once again went to Paris to take part in the Hygiene Congress and Legal Protection of Workers' Assembly. On his return to Mexico, he became advisory engineer to the Board of Health and to the Administrative Board of the City of Mexico. Preaching the doctrine of conservation combined with sanitation, he drained malarial swamps and planted them to trees or flowers. Hog wallows and trash heaps in the city and its environs were transformed into flower gardens of rare beauty. Wide avenues of trees were planted, among them the eucalyptus which Senor de Quevedo introduced into Mexico and which has since become one of its most popular shade trees.

Working with the Central Board of Forests he started two campaigns for tree planting, projects which he enlarged when, under President Madero, this board became the Department of Forests and he its director.

Nurseries were established at Coayaacan and at Xochimileo. These have become nursery-parks of such beauty that today tourists flock to see them. What the tourist fails to see, however, as he rides through Coayaacan peering at the first house of Cortez or Alvarado, is the

private park of Senor de Quevedo. This lovely park was created by him on what was once a desolate quarry site. It is to this quiet retreat that he goes when pressure of his many duties becomes too great. Restored by communion with his trees, he returns to Mexico City where he maintains an office in his spacious home.

"I believe the thing which gave me the greatest satisfaction," he will tell you, "was the establishment of the first school of forestry at Santa Fe. I put a great deal of thought into the selection of the faculty, and, empowered by the government, I sent to France for some of the instructors. The results have been more than gratifying."

All has not been smooth sailing for the Apostle of the Tree. Heart-breaking discouragements, indifferences, ridicule and active opposition have frequently beset him. The government of Mexico changed with alarming frequency, as one revolutionary party ousted another. The Huerta administration was out of sympathy with his ideals, and his work, receiving little or no support, languished.

In 1914 he again went to Europe to delve more deeply into the study of forestry. Then, in 1922, he established the Mexican Forestry Association—*Sociedad Forestal Mexicana*—the chief purpose of which was the propagation of trees. He also founded the magazine, *Mexico Forestal*, a scientific and cultural publication for the greater dissemination of information on trees.

It was in Vera Cruz that Senor de Quevedo was to receive greatest recognition of his work. He had improved the harbor of that city, making it into a modern shipping port; and, later, when the town had been endangered by sand, he had bound down the shifting sands with vegetation. But, with the passing years, the work had been neglected. Trees had

been cut down and the sands were again encroaching. So, as before, Senor de Quevedo went to the rescue. Federal and local governments and petroleum and railroad companies were brought into a co-operative fight for reforestation.

About this time there came to Vera Cruz General Lazaro Cardenas, who was campaigning for the presidency of the republic. He was greatly impressed by the engineer's work.

"If I am elected," he said to Senor de Quevedo, "I should like to have you in my cabinet. You are doing a work that is of inestimable value to Mexico, and I should like to see you continue."

He has made good that promise. Funds are extremely scarce, but Senor de Quevedo is a wizard at accomplishing much with little. His Department of Forestry, Fish and Game is, in reality, one large department of conservation, including supervision of national parks, of which there are now thirty-six.

Best known of these parks is the famous *Desierto de los Leones*, which is but a short drive from Mexico City. The Mexicans love this park, and each Sunday and holiday hundreds in cars, carriages and on bicycles make their way to its high elevation to picnic in the shade of its ancient Moctezuma pines.

Of special interest to people of the United States is the *Sierra del Carmen*, Mexico's largest national park. Containing more than a million acres, it lies in the states of Coahuila and Chihuahua, with 7,000,000 additional acres on this side of the border. Due largely to Senor de Quevedo's efforts, the management of this park is a cooperative undertaking between the governments of Mexico and the United States.

A few minutes' ride from Uruapan lies the *Barranca de Cupatitzio*, loveliest of Mexico's national parks. It derives its name from a Tarascan Indian word mean-

TREES AND THEIR USES—No. 49—PAPER BIRCH



ing "Singing River," which aptly describes the beautiful stream which suddenly appears from nowhere a few miles above the park. Its waters cut their way through a rocky gorge, pausing in their course to form a clear pool where once bathed the lovely Erendira, daughter of an ancient Tarascan king. Mirrored in its emerald depths are tall trees which shade the river path and along which orchids and tropical ferns have been placed.

The need for trees, shrubs and flowers for planting on a gigantic scale is met by the many nurseries which are a part of Senor de Quevedo's organization. There are now thirty-eight state nurseries and 1,600 in the rural schools which were established in cooperation with the superintendent of public schools. In addition, there are many community nurseries.

The writer visited several of these nurseries. He was told by the manager at Uruapan that an average of 250,000 trees are distributed annually from that center. Many of these are shade and ornamental varieties, such as palm, acaecia, cypress, hackberry, carob, catalpa and casuarina; but by far the majority are fruit producers such as citrus, papaya, mango, chirimoya and avocado. They are given free to anyone who has a place to plant them. It is Senor de Quevedo's belief that fruit trees will be given better care than trees which merely furnish shade, hence the greater number of the former.

In addition to the trees distributed among the people, thousands are taken from the nurseries and planted by the Forestry Department. There are also more than 3,000,000 potted plants which the organization uses when and where needed.

All of this culture and planting means a tremendous amount of labor, which would seemingly entail enormous operating expenses. This is not the case, for Senor de Quevedo secures an amazing amount of cooperation in the form of labor. Recently, the soldiers have been active in helping the Department in its extensive program, for the President believes that fighting to save the land from wind and water erosion is a worthy battle for any soldier. It is no uncommon sight, therefore, to see truckloads of trees manned by uniformed and armed soldiers, rumbling along the highway. Country folk are impressed by the sight, and the conservation idea is spreading.

Here and there, in isolated spots, neat signboards greet the eye with this message: "The Tree Is Your Best Friend — Guard It". A sign challenges the curiosity of every Mexican, although many of the people cannot read. They ask questions,

however — and information gained so laboriously is not readily forgotten. The peon has become tree conscious.

His ingenuity and ability to circumvent expense gained for Senor de Quevedo's department a much coveted museum. He had long felt the need for a place in which to display those natural resources under his protection, in order to show the public the wealth and beauty of their country's wildlife and to arouse a desire to safeguard them. There was no money for such a luxury; but the directorial eye chanced to fall upon a building which was the perfect answer. It stood within Chapultepec Park and had long been used as a restaurant catering to visitors to that historic site.

Senor de Quevedo has never revealed how he acquired it, but the building today houses a marvelous display of mounted birds, animals and fish. Hundreds of specimens of native woods, with models illustrating some of their uses, are shown. The lower floor is devoted chiefly to displays from national parks and forests. Each week, thousands of people, including classes from the public schools, visit the museum.

Educating the public along conservation lines is a slow, tedious, and often a thankless task. But the zeal of one slightly built, unassuming man has been a guiding light through the darkest days. The rising generation will have many conservationists in its ranks, ready to take up the torch and carry on the work so well begun and so capably developed by the Apostle of the Tree.

"The Skyscraper by the Sea"

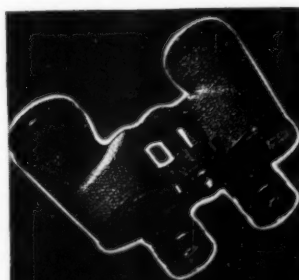


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SCIENTIFIC CONGRESS

The Eighth American Scientific Congress will be held in Washington, D. C., May 10 to 18. Leading educational institutions and scientific organizations throughout the twenty-one American republics have been invited to participate. This inter-American Congress will celebrate the fiftieth anniversary of the founding of the Pan American Union.

One of the most important pieces of conservation legislation still hanging fire in Congress is the amended Barkley bill, S. 685, dealing with stream pollution. Passed by the Senate over the protests of conservationists based upon its alleged innocuous form, the bill was approved by the House on March 1, with an amendment by Representative Mundt of South Dakota, making it unlawful for new sources of pollution either by sewage or industrial waste to discharge into the navigable waters of the United States without approval of the Division of Water Pollution in the Public Health Service.

The bill is still in conference and up to the time of going to press it had not been taken up for consideration by the conferees, who are Senators Barkley, Shepard and McNary and Representatives Mansfield, Gavagan, DeRouen, Seger and Carter. A meeting of the conferees has been delayed by illness on the part of Representative Mansfield. Approval of the Mundt amendment by Thomas Parran, Surgeon General, United States Public Health Service, was entered in the Congressional Record on April 12 when Mr. Mundt read a letter from the Surgeon General stating: "In my opinion the bill as passed by the House represents a constructive approach to this important and constantly increasing problem. It affords the opportunity for all agencies and organizations which are interested in cleaning up our streams to work together in accomplishing the purpose of the proposed legislation, and I earnestly hope the legislation will be enacted."

Protecting Natural Beauty

Another bill still pending in which there is wide interest is S. 231, introduced in the Senate by Senator McNary and passed by that body last session. A companion bill was also introduced in the House, H. R. 299, by Representative Wall Doxey. This bill is designed to make possible the preservation of forest and natural beauty along roads, highways, and trails hereafter constructed wholly or in part with federal funds. It would do this by authorizing that not to exceed five per cent of the funds appropriated for federal aid highways be used in acquiring forest lands adjacent to said highways. It would limit such acquisitions to roadside areas of not more than one-quarter mile from the exterior boundary of the roadway except where the lands are deeded to the states by gift or devise.

A hearing on the bill was held by the House Subcommittee on Agriculture on April 23. Declaring the bill to be a highly meritorious one, The American Forestry Association urged the House Subcommittee to report it out in order that it may receive action before the present Congress adjourns. Members of the House Subcommittee are: Wall Doxey of Mississippi, chairman, James G. Polk of Ohio, Fred Cummings of Colorado, Or-

FORESTRY IN CONGRESS

ville Zimmerman of Missouri, Stephen Pace of Georgia, Clifford R. Hope of Kansas, William Lemke of North Dakota and Frank O. Horton of Wyoming.

Amend Mining Laws

To protect national forest lands located for mining purposes against uses other than mining, Representative Magnuson introduced in the House on March 21, a bill, H. R. 5195, to amend the United States mining laws by providing that unpatented locations and mining patents hereafter issued covering national forest lands shall carry only the right to occupy and use for prospecting and mining. A change in the mining laws to curb the preempting of national forest areas of high public recreational value under the guise of mining has long been recognized, and Mr. Magnuson's bill is designed to meet this situation. It contains a proviso that the Secretary of Agriculture may, in his discretion, permit holders of mining locations and patents to use the surface ground of their claims for other purposes, under such conditions and regulations as the Secretary may lay down. The bill was referred to the Committee on Mines and Mining.

Yellowstone Bill Withdrawn

Giving as his only reason "changed conditions," Representative O'Connor, of Montana, author of H. R. 6975, to reconvey to the State of Montana some 3,000 acres of Yellowstone National Park, withdrew his bill on April 19 and at his request it was stricken from the calendar of the House. The bill had previously been favorably reported by the House Public Lands Committee, over an adverse report by Secretary Ickes.

On April 11, Representative DeRouen, of Louisiana, introduced a bill, H. R. 9351, to amend the act for the preservation of American antiquities. The amendment would authorize the President to create by proclamation national recreational areas on unreserved, unappropriated lands owned by the United States when such areas, in his judgment, contain outstanding scenic or other natural features. The amendment would further give the Secretary of the Interior authority to permit hunting, prospecting, and mining in these recreational areas when not inconsistent with their use for water conservation, reclamation, and power projects.

Protection of Municipal Watersheds

On April 17 the House Committee on Agriculture reported favorably the bill, S. 229, passed by the Senate at the last session of Congress, authorizing the President to reserve and set aside "from all

forms of location, entry, or appropriation" any national forest lands from which a municipality obtains its water supply and has entered into a cooperative agreement with the government for the

protection of the watershed. In consideration of the withdrawal of the area from other forms of use, the bill provides that when municipalities request such withdrawals to protect their water supply they shall pay to the Forest Service "annually an amount which the Secretary of Agriculture shall determine as necessary to reimburse the United States for the loss of net annual revenues which would be derived from the resources so withheld from disposition."

CCC Appropriation

The House of Representatives by a vote of 134 to 100 has increased the Bureau of the Budget's recommended appropriation for the Civilian Conservation Corps for the next fiscal year, from \$230,000,000 to \$280,000,000. Retention of this figure by the Senate, which is \$15,000,000 under the amount appropriated for the present fiscal year, it is said, will maintain the existing quota of 1,500 camps. In view of the established policy of the House to support or even cut below the Budget Bureau's recommendations, the House action is interpreted as a tribute to the popularity of the Corps.

An amendment by Senator Clark of Idaho to the Interior Appropriation bill, H. R. 8745, now awaiting Senate action, calls for an appropriation of \$130,000 to prevent and suppress fires on lands under jurisdiction of the Department's Grazing Service. Until 1934 such work was conducted under specific appropriation amounting to as much as \$60,000, together with the cooperation from the Forest Service and the CCC. Since then, without direct appropriations, there has been no organized program of fire protection.

The Biological Survey's task of controlling predatory animals and injurious rodents would be financed with the full authorization of \$1,000,000 rather than \$675,000 if another amendment submitted by Senator Clark is accepted.

Interior Appropriation Bill

Senate hearings on the Interior Appropriation bill before Senator Hayden's subcommittee were concluded on April 10. As passed by the House on March 7, the bill includes \$8,948,770 for the National Park Service, \$4,881,093 for the Biological Survey, \$2,255,575 for the Bureau of Fisheries, \$1,000,000 for the Grazing Service, \$185,000 for payments to counties in connection with the O and C lands, and \$1,548,656 for the Bureau of Indian Affairs.

All committee increases to forestry and conservation appropriations in the Department of Agriculture supply bill, H. R. 8202, as reported in AMERICAN FORESTS for April, were retained in the bill as passed by the Senate on March 22.

These include \$19,462,720 for the Forest Service and \$21,790,750 for the Soil Conservation Service. Dutch elm disease eradication remains at \$400,000.

White Pine Blister Rust

The long delayed Lea bill, H. R. 3406, to clarify the federal policy in regard to white pine blister rust control, passed the Senate on April 10. This would authorize the Secretary of Agriculture to cooperate on a fifty-fifty basis with private owners of timberlands and various agencies administering publicly owned forests and to conduct the work of eradicating currant and gooseberry plants on forested lands irrespective of ownership. Senator McKellar of Tennessee, however, succeeded

in eliminating the section authorizing annual appropriations for carrying out the provisions of the act, which may leave subsequent appropriations subject to a point of order. The bill as amended was approved by the House April 18.

Senate approval of the President's nomination of Representative Marvin Jones of Texas, as judge of the United States Court of Claims, will cause the first major change in the House Committee on Agriculture since Mr. Jones became chairman in 1933. With continuation of Democratic control Representative Hampton P. Fulmer, of South Carolina, will succeed to the chairmanship. Mr. Fulmer is also vice chairman of the Joint Committee on Forestry and has been active in practically all its public hearings.

Ickes May Take Mountains

BY BOAKE CARTER

In the Philadelphia Public Ledger

SPOKANE, WASHINGTON.—Dividing the rich State of Washington is the Cascade Mountain range. It stretches from way up in Canada to Portland, Oregon. On the west side of this backbone is green fertile land, giant cedars and firs, fishing industries, the greatest chicken-raising section in the nation (602 box cars of eggs out of one county in one year), dairy farms and cattle raising.

On the east side grow the famous apples that, until the war, were shipped around the world. But the eastern side is dry and arid compared to the western slopes. And so to turn this arid area into a great agricultural production basin of rich land, a gigantic irrigation project is slowly moving forward.

The keystones around which this irrigation project swings are two great dams about which so much has been written—Grand Coulee and Bonneville—on the Columbia River. The waters held behind these stupendous walls of concrete are to supply not only the farmers on the eastern slopes of the Cascades and in the plains stretching toward Idaho, but also to provide an almost limitless supply of power.

Upon this project the federal government is spending between a quarter and a half billion dollars. Moreover, the money is being handled by the Department of the Interior through the PWA. And the boss of this outfit is Harold Ickes, irrepressible Secretary of the Interior.

Imagine then, the surprise, consternation and bewilderment—not to mention anger—of inhabitants of the state, when Ickes appeared in their midst and announced that he intends to try and turn most of the Cascade range in Washington into a national park.

This means slicing a 5,000-square mile strip right out of the heart of the State of Washington, itself not more than 40,000 square miles in area.

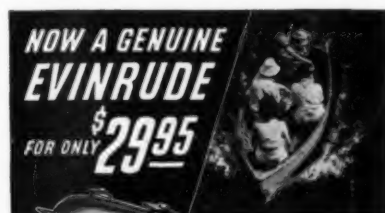
Now, to understand what this means it should be related, first, that such an eventuality would mean that the state would be sliced into two parts—with the federal government owning the corridor between. It would be another "Po-

lish Corridor," with the "more abundant life" gentry of the New Deal holding the power of life and death over not only the State of Washington, but to a considerable degree over the surrounding states.

The area in question is now under control of the Forest Service of the government. This means the Department of Agriculture. Sneaking away control of such a prize area from Henry Wallace appeals to Harold Ickes sense of satire—not to mention his well-developed sense of bureaucracy, with attendant patronage and political machinery in which to park more Ickes henchmen.

These, however, are minor considerations. There is a matter more critical.

This long range of hills is filled with minerals of many kinds, particularly chromium. At present the United States imports 70 per cent of its chromium from foreign sources. Chromium is a critical mineral for peacetime industry as well as national defense. The range contains rich



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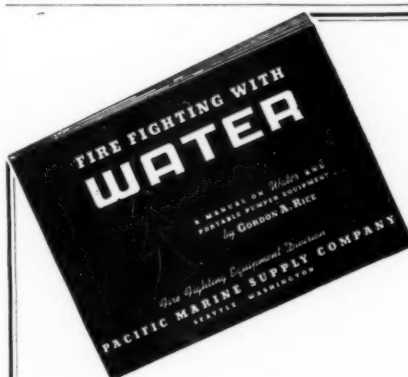
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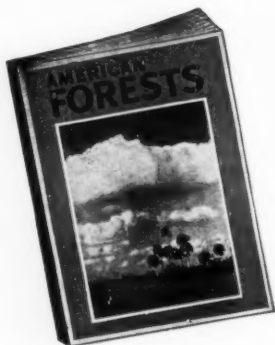


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- Protection of Fish and Game and other wildlife under sound game laws.
- Prevention of Soil Erosion
- Preservation of Wilderness for Recreation
- Establishment of State and National Forests and Parks
- Development of Forestry Practices by the forest industries.
- Education of the Public, especially children, in respect to conservation of America's natural resources.
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deposits of copper, zinc, molybdenum, nickel, sulphur and hemalite. Upon its slopes are hundreds of thousands of acres of virgin timber, sources of a great supply of lumber. Down its sides runs the water to the west, which fertilizes the Pacific slope valleys to such green richness.

If Ickes is successful in forcing Administration leaders in Congress to approve this strip as a national park it will mean that no mining whatsoever could be done to extract the minerals buried in these mountains. For under the laws of the federal government, no commercial activity may be permitted in or on any ground under the control of the National Park Administration. But, under the Forest Service of the Department of Agriculture, under whose jurisdiction this territory now lies, no such barriers prevail.

So we have Mr. Ickes' department spending tens of millions to build two great dams to supply power, among other things, to mining companies.

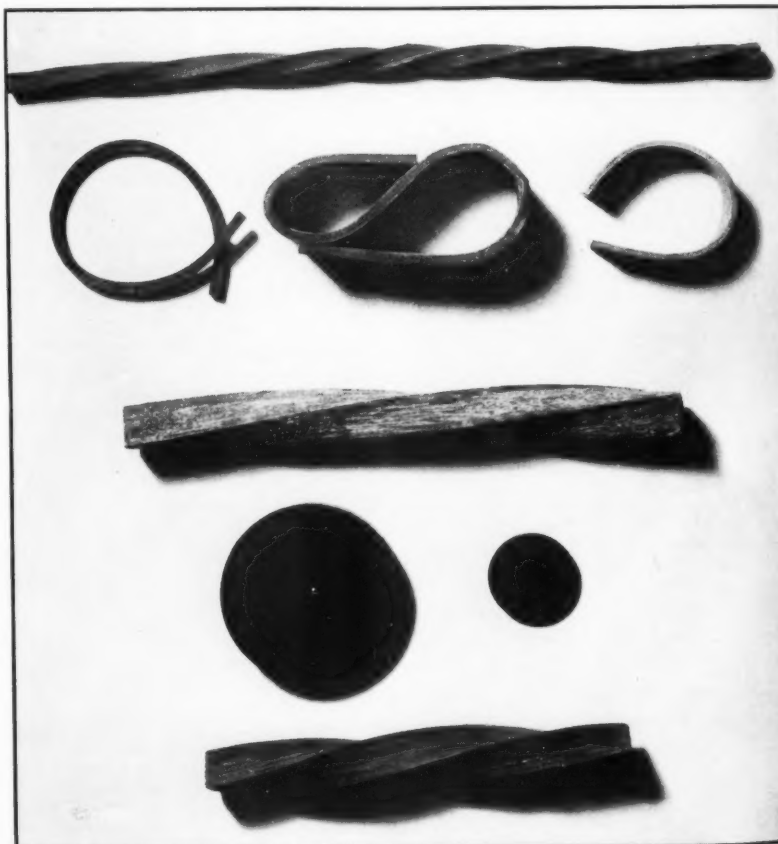
We also have Mr. Ickes attempting to establish a national park out of state property, by which action much of the use of the water from the dams on which he is spending the supermillions would be barred!

Sense? Of course, there's no sense to it, yet if it is achieved a huge payroll would be destroyed. Miners' prospecting chances would be ruined. Strategic war materials would be locked up. The Columbia Basin irrigation project would be ruined. Grazing of cattle in forest areas would be stopped. The State Highway Department would be crippled on all cross-state roads, stop the building of any more cross-state highways. The expansion of further power-plant establishments would cease. In addition it will ruin propagation of commercial food fish in the streams; lock up huge timber crops to die and rot; drive people from their homesteads. And yet this is supposed to be the humanitarian New Deal!

One may well wonder if some of the great eastern importers of minerals and metals who buy from their holdings abroad have not put the screws on Ickes, so as to prevent any future competitive exploitation in this rich range of hills. And there are also some vast lumber interests that would not be averse to seeing a great timber area removed from the possible reach of potential competitors.

What's the secret, Honest Harold?

—By permission of Boake Carter and the Ledger Syndicate.



Samples of plasticized swamp oak [See "Editor's Log" on page 197 for story]. The figure-eight-shaped piece was bent with the grain; the open loop to the right was bent across the grain; the large disk was laminated in pressing from small pieces; the small disk was made from blackjack oak sawdust

FEDERAL NEWS AND REVIEWS

THE New England Timber Salvage Administration opened the third quarter of the current fiscal year within seven per cent of its goal. On April 1, logs and pulpwood totaling more than 681,000,000 board feet had been delivered and the clean-up in New Hampshire lacked only three per cent of completion. By July 1, the administration hopes to salvage 730,000,000 board feet of timber.

This, with the forest planting projects now under way on national forests, contributes heavily to the program which in 1939 employed in excess of 4,000,000 persons. Workers living in and near national forests throughout the country harvested timber purchased from or secured under regulations of the Forest Service, herded and cared for privately owned livestock grazed under permit on forest lands, worked at summer resorts, dude ranches and hotels catering to national forest visitors, and performed numerous other activities associated with the forests.

Prairie Forestry Project

Tree and shrub windbreaks planted under the Prairie States Forestry Project during 1939 show survivals averaging sixty-six per cent. This improvement over the previous year is attributed to better care by cooperating farmers and to improvements in the technique of producing, handling, and planting the trees. Most easily established of all trees in the windbreaks were green ash, honey locust, American elm, mulberry, Chinese elm, lemonade sumac, soapberry, and buckthorn. Already these windbreaks are the homes of increased numbers of insect-eating birds. Recent Forest Service studies reveal that throughout the 11,000 miles of field windbreaks notable increases have taken place among pheasants, quail, mourning doves, and prairie chickens, as well as among orioles, scissor bills, and meadow larks.

National Forest Purchases

National forest areas in eighteen states were increased by 68,552 acres by action of the National Forest Reservation Commission on March 21. The total price of these lands, in 213 separate tracts, was \$300,576. More than a third of the money outlay purchased 18,000 acres for additions to recently established national forest units in southern Indiana and Ohio. Also included were 418 acres containing virgin timber exceeding a million board feet of white pine, red pine, and hardwood for addition to the Hiawatha National Forest in the upper peninsula of Michigan. In the Lincoln National Forest's newly established purchase unit in southeastern New Mexico, 17,462 acres were acquired for \$30,000. This once

fertile farm and timberland now being laid waste by erosion may be restored under Forest Service management.

Isle Royale Park

Isle Royale National Park in Lake Superior, Michigan, authorized by Congress in 1931, became an actuality on April 5 when Secretary Ickes accepted title from the State of Michigan to the remaining land necessary to fulfill federal requirements. Isle Royale is forty-four miles long, about nine miles wide at its widest point, and contains some 130,105 acres. Approximately 3,000 acres, together with \$100,000 for the purchase of 5,000 additional acres, was donated by the State of Michigan. Some 10,266 acres were transferred from the public domain and the remaining acreage was purchased with \$700,000 set aside by President Roosevelt from emergency funds appropriated in 1935.

Maintenance of the recently authorized Kings Canyon National Park, in California, as a wilderness is assured in recent instructions from Secretary Ickes limiting automobile entrance to the single state road which leads to the south fork of the Kings River. Major developments are confined to camp ground and public facilities at the terminus of this road.

1940 Duck Stamp

The 1940 "duck stamp," designed by Francis L. Jaques, now available for purchase by all migratory water fowl hunters over sixteen years old, shows a pair of black ducks flying over a marsh area. It is nearly twice the size of a "special delivery" stamp and costs one dollar. Receipts from sales of "duck stamps," which totaled \$1,002,000 in 1938, may reach \$1,500,000 for 1939. The stamp must be purchased by all who would hunt migratory water fowl.

Reports received during the past winter reveal that the birds are in better condition than last year, that the migratory flights are heavier, and that the past winter saw no great water fowl losses from starvation.



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AROUND THE STATES

A series of laws to check forest fires which for decades have destroyed millions of dollars in timber was recently passed by the Mississippi State Senate.

The key bill of six which passed with large majorities was a measure to designate uncontrolled fires a public nuisance. Damage caused by fires would be recoverable by civil action and any person responsible for setting one would be guilty of a misdemeanor. A companion bill would give state and county forest rangers the authority of peace officers to make arrests in such instances and to cross private property lines without being guilty of trespassing. It is estimated that Mississippi loses \$60,000,000 annually in the value of timber burned.

Florida Fire Losses Decline

While Mississippi was taking this action to check fire destruction, the Florida Forest and Park Service announced that forest fire losses on protected lands in the state during 1939 were considerably lower than in 1938. Less than three per cent of the 4,700,000 acres of privately owned land under cooperative fire control were burned over. On unprotected land fifty-five per cent were burned.

On the protected areas seventy-three per cent of the fires were incendiary. These were responsible for eighty-five per cent of the total damage. Twenty-four per cent were caused by smokers, campers, lumbering operations and railroads. The average loss on protected lands was

thirty-two acres a fire. More than seventy-two per cent of the acreage burned was in young timber.

Virginia Seed Tree Law

A bill to provide for the natural re-seeding of pine on forest land in a number of southeastern counties in Virginia was passed by the General Assembly of that state late in March. Under the provisions of the act, cutting operations on land on which loblolly and shortleaf pine singly or together represent fifty per cent or more of the total stand must be regulated so that a designated number of seed trees an acre are left standing. In areas where the pines are ten inches in diameter, three trees an acre must be left uncut; in areas where the diameter is less than ten inches, four trees must be left on each acre. These seed trees cannot be removed until at least ten years have elapsed after the cutting of timber on such land.

Any landowner or operator violating the provisions of this act is subject to a fine of \$100 for each seed tree cut.

Billion Fish in Wisconsin Lakes

For the third consecutive year, the Wisconsin Conservation Department has distributed more than a billion fish of all species to the state's lakes and streams. The 1939 figure of 1,133,000,000 fish represents a gain of 36,000,000 over 1937.

This great propagation program included the hatching and planting of 700,000,000 wall-eyed pike, 355,000,000 perch, 24,000,000 muskellunge, 10,000,000 lake trout, 10,000,000 bluegills, 6,000,000 brook trout, and lesser numbers of brown and rainbow trout, sunfish, black bass, great northern pike, and others.

In 1940, according to H. W. MacKenzie, state director of conservation, Wisconsin expects to increase its distribution of fish to one and a half billion.

Ballard with Parks Association

Edward B. Ballard, for the past seven years associated with the landscape and recreation divisions of the National Park Service, has been appointed executive secretary of the National Parks Association, succeeding James A. Foote, who resigned early in the year. Mr. Ballard is a graduate of Harvard College and of the Harvard University Graduate School of Landscape Architecture.

"As secretary of the National Parks Association, Mr. Ballard will forward its program for the maintenance of primeval standards of national parks," said William P. Wharton, president of the Association.

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SCIENCE AND EQUIPMENT

TRAIL RIDER ACCESSORIES

For a horseback expedition up into the clouds the chief essential is a warm but lightweight sleeping bag. Abercrombie & Fitch Company has announced the "Two Star Arctic," weighing only eight pounds and suitable for use in weather down to twenty-five degrees. It is filled with Everlite down from northern water fowl and has a soft closely woven olive drab cover of water repellent Egyptian sail silk. The lining is a pure wool flannel and a hookless fastener down the side and across the bottom provides quick and full opening.

A pair of saddle bags is also desirable for the trail. Easily attached to the saddle, these bags have two large pockets and two smaller pockets on each side. A generous flap securely covers all pockets and is held in place with straps and brass buckles. A cinch strap gives positive security. The entire bag is made of green service duck, leather bound, and weighs four pounds. For extra clothing such as shirts, socks, underwear, etc., a small duffle bag is recommended. A two-pound one, made of green waterproofed duck, should be satisfactory. This is practically indestructible, provides protection for your clothes, and may be fitted with a chain lock. For protection against an unexpected shower, it is advisable to take along a riding raincoat. These may be had in various weights and materials but a good serviceable one for men is of alligator cloth and one for women of balloon cloth. These coats are roomy enough to cover rider, saddle, saddle bags and all.

"FORESTER" ELECTRIC HEADLAMP

Night operations outdoors under emergency conditions are exceedingly difficult, hazardous and slow without adequate artificial lighting equipment. Forest fire control operations are more successful at this period of the day due to the increase of relative humidity and decrease of atmospheric temperatures after sunset. Fire control authorities have long recognized this fact and have resorted to the use of kerosene and gasoline lanterns, miners' lamps, flashlights and similar devices but with very limited success. Efficient operations were hampered as such lights were inadequate, could not be directed on the scene of operations, lacked volume and required part of the fire crew to operate them as well as creating additional fire hazards in themselves. Various commercial electric headlamps were tried but due to inherent weakness in design and construction were found of limited value.

Consequently the federal Forest Service Fire Equipment Committee drew up National Standard Specification No. MSF-178 to cover a light suitable for forest fire control operations. Included in

these specifications were all the service features required for such a device.

The Forester Electric Headlamp offered by the Western Fire Equipment Company was created to meet these specifications: The Forester light provides a concentrated beam over a three-foot area at five-foot distance. Two separate circuits, each utilizing two standard flashlight batteries permit alternate use of each circuit, and intermittent recuperation of batteries.

TREE PROTEX

A new tree spray called "Protex" is being offered by Protex Industries, Inc. It was first successfully used a year ago at the New York World's Fair and officials praise it highly as a spray to reduce dehydration and avoid severe pruning. It does not wash off the tree and prevents excessive transpiration without restricting respiration. The makers recommend tree Protex as being superior to burlap, straw or other wrappings in extreme temperatures. In addition to a winter Protex, a summer consistency is also available and is designed to prevent sun scald or scorch. The product is a rubber compound and forms an elastic coating that reflects the rays of the sun thereby preventing wide extremes of temperature.

RIBES RAKE

The Caterpillar Tractor Company has just announced a special Ribes Rake for use in blister rust control work. The rake is put onto a twenty-five-horsepower tractor and digs up wild currant and gooseberry bushes by the roots. Exposure of the roots to the air brings quick death to the disease and as recently used by the Blister Rust Control Service in the Sierra Nevada, has prevented the spread of the disease in the sugar pine forest. Where there are inaccessible places where the tractor cannot go, a winch is used to pull a special plow which does the same work.

FREE BOOKLET Describing INSECT CONTROL on SHADE TREES

The widespread use of "Black Leaf 40" as a control for certain destructive insects is due to its unusual efficiency. It is also compatible when combined with any standard spray material which does not cause injury to plants when used alone. Because "Black Leaf 40" kills both by contact and by fumes, its efficiency is thereby increased.

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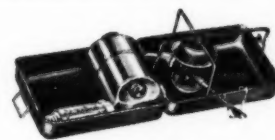
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YOUR SHADE TREES

PLANT A WHITE BIRCH

"MOTHER'S TREE"

THE beautiful custom of planting a "Mother's Tree," so generally thought to be an activity of various national and community organizations, was, in reality, conceived for the individual. Growing out of the desire of a tree lover to pay suitable tribute to his mother, the idea is one that Americans can and should adopt. In yards or gardens throughout the land, as well as in public parks and on public grounds, the tree that honors mother should become rooted. So, plant a "Mother's Tree" this spring. There is no more appropriate time to do this than on Mother's Day.

The initial "Mother's Tree," planted on the shore of Lake Antietam, in Reading, Pennsylvania, in 1923, was a slim white birch. This "Lady of the Woods," as Coleridge described it, was later designated by The American Forestry Association as the national tree to be planted to honor mothers and motherhood. The birch was chosen because it seemed to embody those characteristics and qualities that symbolize motherhood, and also because of its general planting adaptability. As it has been described, "The stem is slender, tall and extremely graceful, rounding out with dignity in full maturity. The smooth, satiny bark is white, growing whiter with the years; and also as it ages it acquires the striking black markings which add so much to the beauty of the mature tree—as the inevitable scars of life add to the beauty and sweetness of a woman's heart. Then there is the foliage—cut-leaved, dainty and fine, soft and delicate in texture and color—lovely indeed as it sways in the breeze. But more than all, perhaps, is the way of the tree with its branches as they seem to reach in sheltering fashion, like a mother's arms."

Of the birch trees, the European form—*betula laciniata*—is generally accepted as the official "Mother's Tree" both because it is more appropriate and beautiful in form than our native American white or paper birch, and because it will

grow almost anywhere, except in very arid regions.

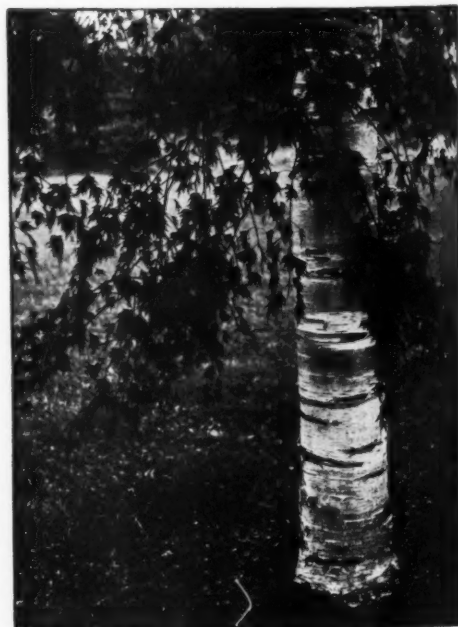
It was the late Solon Parkes, of Reading, Pennsylvania, long a lover of trees and a forestry enthusiast, who originated the idea and who planted the first "Mother's Tree" on May 13, 1923. This initial tree has flourished, as has the custom. Under the auspices of The American Forestry Association, white birch trees have been planted and dedicated to individual mothers, groups of mothers, and to mothers belonging to the nation. And it is the hope of the Association that this custom shall increase in practice until not only each state and important city, each town and hamlet, but every family shall have its white birch, chosen, planted and dedicated in tribute to the purest sentiment known to the questing heart of man—his love and reverence for motherhood.

Following the initial planting at Reading, three "Mother's Trees" of national significance have been planted at Washington under the auspices of The American Forestry Association. On May 11, 1924, a white birch was dedicated with a beautiful ceremony on the grounds of the White House to honor the mothers of our presidents—past and to come. Calvin Coolidge, then president, accepted the tree for the nation, and Mrs. Coolidge put the first earth on its roots. Then while hundreds of school children sang patriotic songs, bouquets of white flowers, bearing the name of the mother of each of our presidents, were banked around the slender birch. This graceful tree has a particular meaning today as it honors the only living mother of a president since the inception of the custom—Sara Delano Roosevelt,

the mother of President Roosevelt.

On a May day in 1925, with beautiful ceremony and a colorful pageant in costume by the children of the schools of the District of Columbia, a "Mother's Tree" was planted on the Capitol grounds to honor the mothers of the nation. Then in May of 1932, high on the hills of Arlington which overlook Washington, a birch tree was planted to honor the mother of the Unknown Soldier—that hero of impenetrable mystery before whose tomb the great and the small have paid tribute.

At Fredericksburg, Virginia, at the tomb of Mary Ball, mother of George



J. Horace McFarland Company

The smooth, satiny bark of *betula laciniata* grows whiter with the years

Washington, stands another "Mother's Tree" of national significance. This lovely birch was planted nearly ten years ago on the side of the hill near Meditation Rock, where in the twilight of her life she spent so many happy, quiet hours and which now, as her final resting place, is rapidly becoming one of the most visited of our national shrines.

To honor the memory of Nancy Hanks, the mother of Abraham Lincoln, The American Forestry Association is planning soon to plant a white birch near the Lincoln Memorial in Washington. And when the miles of visitors come to the shrine of this great man and see the reflection of his memorial in the Lincoln Pool which lies between great avenues of trees, perhaps the birch will bring a reflection also and be a reminder of a great mother.

In addition to these national plantings, "Mother Trees" have been planted at the capitals of a number of sovereign states, as well as by patriotic or other organizations. The spade used in planting the initial tree at Reading, now the property of The American Forestry Association, has been sent all over the country, functioning each year in some outstanding ceremony of planting a "Mother's Tree."

But no ceremony, however national in character, is quite so beautiful nor so significant as that enacted by the individual who, in the intimacy of his or her own garden, plants a white birch to honor motherhood. So, if you have not already done so, plant a "Mother's Tree" this May.

In selecting your tree, look first for the European white birch, *betula laciniata*, the cut-leaved variety, or *betula alba* var. *pendula*. These are very hardy and adapt-

able over a wide area. If difficulty is experienced in obtaining either of these, substitute with the American white or paper birch, *betula papyrifera* (described by G. H. Collingwood on page 220). These trees are very similar in appearance, small and open-crowned with light green foliage. The bark of the European forms is more silvery; that of the American white birch being a gleaming white, and more papery. Whichever you select, be sure that your tree is obtained from a reliable nursery.

Having selected your birch, be sure that it is planted before its leaves unfold. This is very important. In many regions this will mean planting the tree before Mother's Day—but it may also mean the difference between life and death for your birch. Get it in the ground as soon as possible—then on Mother's Day hold an appropriate dedication ceremony.

Be sure the ground is properly prepared well in advance of planting. This means the digging of a hole larger than the roots or root ball and the preparation of fertile soil with which to fill in. This should be packed firmly around the roots or root ball. But before the tree is put in the ground, prune the side branches back so that the main stem is little more than a whip. This will reduce the strain on the roots. The young tree should be well watered for the first year.

If you select a tree from six to eight feet high, the best size for your planting, triangular braces should be used for at least a year. Also, when possible, it is best to plant on a site with a northern or eastern exposure.

Once established, your tree should thrive—a green, living memorial to your mother.

National Shade Tree Conference in August

THE sixteenth National Shade Tree Conference will be held at Detroit, Michigan, on August 27, 28, 29 and 30, it has been announced. Headquarters will be at the Book-Cadillac Hotel. Although a detailed program has not been released, it will present discussions on the technical and scientific problems of shade tree preservation by the nation's outstanding authorities. Trade and educational exhibits, as well as field demonstrations, have been scheduled.

According to D. F. Hayman, chairman of the publicity and attendance committee, "Detroit during the four days of the conference will be host to the country's leading horticulturists, plant pathologists, entomologists, foresters, landscape architects, estate, park and cemetery superintendents, nurserymen, manufacturers and distributors of materials used in the science of tree preservation."

About the National Shade Tree Conference, he said, "When the Connecticut Tree Protection Board called a meeting of a few scientists and practicing arborists at Stamford in 1924, little did they realize that from this meeting was to eventually develop a national organization covering every conceivable art for the advance-

ment of shade tree preservation. Looking back on fifteen successful conferences, plans for the sixteenth have almost been completed. Owing to continued increase in membership, another day had to be added in which to round out a program packed with educational and entertaining features. The conference is open to anyone interested in shade tree preservation," Mr. Hayman concluded.

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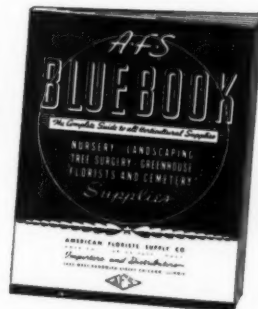
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THE IDENTIFICATION OF TREES AND SHRUBS, by F. K. Makins. Published by E. P. Dutton and Company, Inc., New York City. 326 pages. Illustrated. Price \$4.00.

Line drawings of leaves, flowers and fruit are grouped to serve as a key for the identification of 1,732 species of trees and shrubs. Drawn from the temperate zones of the world, their choice is limited only to the extent that they are grown in British woods and gardens. Accordingly, while it refers to most of the American species, this book is especially helpful in identifying exotic trees and shrubs found growing in American parks and gardens.

ALASKA WILD FLOWERS, by Ada White Sharples. Published by the Stanford University Press, Stanford University, California. 156 pages. Illustrated. Price \$3.00.

An excellent guide to the identity of the interesting and colorful wild flowers and plants of the Northern Territory. Tourists and students visiting Alaska and the northwestern stretches of the United States will find it very helpful.

WONDERS OF THE WEST, by Oren Arnold. Published by Banks Upshaw and Company, Dallas, Texas. 229 pages. Illustrated. Price \$2.00.

Open this book at any page and read—or look at the pictures. You will be surprised at what you thought you knew about the West and didn't. Invoking all the resources of graphic and literary art, the author portrays every side and angle of the vast region that stretches from the Great Plains, across mountain and desert, to the Pacific. Written primarily for young people, with a view to their interests and educational needs, readers of all ages will find in it a book that will enrich both understanding and imagination.

WILD ANIMALS, by Frances E. Clarke. Published by the Macmillan Company, New York. 335 pages. Price \$2.50.

A collection of wild animal stories of our day. William Beebe tells of the monkeys of British Guiana; William Henry Carr about the beaver; Courtney Ryley Cooper records the biography of a circus lion; Kenneth Gilbert tells the story of a skunk, the lord of the trail—to mention a few. Fine stories all, ones that have a lasting place in the hearts of all animal lovers.

GREEN KINGDOM, by William Atherton Dupuy. Published by Row, Peterson & Co., Evanston, Illinois. 64 pages. Illustrated. Price 96 cents.

Of "The Way of Life" series, *Green Kingdom* deals with the life of a forest ranger—key man in the army of protection and administration of one of our greatest natural resources, our forests. The author describes with meticulous care the responsibilities devolving upon him, the opportunities offered by this "way of life," and the high qualifications the work demands.

NEW BOOKS and OTHER PUBLICATIONS

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

THE GEESE FLY HIGH, by Florence Page Jaques, with illustrations by Francis Lee Jaques. Published by the University Press, Minneapolis, Minnesota. 100 pages. Price \$3.00.

Poling into the heart of the coastal marshes near New Orleans, author and illustrator followed the ducks and geese down the Mississippi flyway from Minnesota to Louisiana. They followed this unusual route for an open-air winter vacation and from their pirogue listened to the great geese "flying high." A delightful book. Of it Alexander Sprunt, Superintendent of Southern Sanctuaries, says: "It is compellingly interesting and fascinating throughout. The approach is entirely new . . . anyone who likes outdoor things will be enthralled."

FINDING NEW SUBJECTS FOR YOUR CAMERA, by Jacob Deschin. Published by Whittlesey House, McGraw-Hill Book Company, New York. 239 pages. Illustrated. Price \$2.50.

Every page of this interesting book is packed with new ideas for pictures, new angles for photographing, and new techniques for lighting and arranging. For the outdoorsman who makes a hobby of his camera, this book is indeed valuable. Too, it is designed for the beginner as well as the experienced photographer.

ALL SEASONS AFIELD WITH ROD AND GUN, by Raymond R. Camp. Published by Whittlesey House, McGraw-Hill Book Company, New York. 352 pages. Illustrated. Price \$3.50.

Directed primarily to the amateur, even the novice, this book deals with various methods, practices, and equipment vital to the successful taking of the many fresh water and salt water game fish and the large and small game animals of the eastern United States and Canada. A book for which there is a real need.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

Wildlife in the Farm Program, by James N. Morton. Bulletin 16, Penna. Game Commission, Harrisburg, Penna.

Southern Pines Pay — A Story in Pictures, by Wilbur R. Mattoon. Misc. Pub. No. 357, For. Serv., U. S. Dept. of Agr. Supt. of Docs., Washington, D. C. Price 5 cents.

The Cubic Foot as a National Log-Scaling Standard, by E. F. Rapraeger, Northern Rocky Mountain Forest and Range Experiment Station, U. S. F. S., Missoula, Montana.

Protecting Field Borders, by Verne E. Davison. Leaflet 188, Soil Conservation Service, U. S. Dept. of Agr., Supt. of Docs., Wash., D. C., price 5 cents.

A Vascular Wilt of the Mimosa Tree (Albizia Julibrissin), by George H. Hep-
ting, Circ. No. 535, U. S. Dept. of Agr., Supt. of Docs., Wash., D. C., price 5 cents.

Collecting and Handling Seeds of Wild Plants, by N. T. Mirov and Charles J. Kraebel. Civilian Conservation Corps Forestry Publication No. 5. Supt. of Docs., Wash., D. C., price 10 cents.

The Marketing of Farm Woodland Products in Carroll County, N. H., by Alan MacLeod and John Chandler. Bulletin 318, N. H. Agr. and Expt. Sta., Durham, N. H.

Saving Soil with Sod in the Ohio Valley Region, by Kenneth Welton, Soil Cons. Serv., Farmers' Bulletin 1836, U. S. Dept. of Agr., Supt. of Docs., Wash., D. C., price 5 cents.

Oregon State Forester's Annual Report. Oregon State Board of Forestry, Salem, Ore.

The Crow in Its Relation to Agriculture, by E. R. Kalmbach. Farmers' Bulletin 1102, Bur. of Bio. Survey, U. S. Dept. of Agr., Supt. of Docs., Wash., D. C., price 5 cents.

Hart Mountain Antelope Refuge in Oregon, by Stanley G. Jewett. Misc. Pub. 355, Bur. of Bio. Survey, U. S. Dept. of Agr., Supt. of Docs., Wash., D. C., price 10 cents.

Costs of Tractor Logging in Southern Pine, by Robert E. Worthington. Forest Service Technical Bulletin No. 700. Supt. of Docs., Wash., D. C., price 15 cents.

Mulching to Establish Vegetation on Eroded Areas of the Southeast, by Sydney Franklin. Leaflet No. 190, Soil Cons. Serv., U. S. Dept. Agr., Supt. of Docs., Wash., D. C., price 5 cents.

Butt Rot in Unburned Sprout Oak Stands, by Elmer R. Roth and Bailey Sleeth. Forest Service Technical Bulletin 684. Supt. of Docs., Wash., D. C., price 15 cents.

Use and Abuse of Wood in House Construction, by R. P. A. Johnson and E. M. Davis. Forest Service, Misc. Pub. 358, U. S. Dept. of Agr., Supt. of Docs., Wash., D. C., price 10 cents.

The Glaze Storm

(Continued from page 211)

form a callus. Large branches are removed as close to the trunk as possible, eliminating all signs of a stub. The cut surfaces are coated with a wound dressing to protect the exposed wood tissues.

The most serious consequences of this storm striking, as it did in much of the same region as the hurricane, is the spread of diseases. Following the destruction of many trees and the exposing of fresh wood by torn bark, the way is open for a greatly increased invasion of parasitic insects and fungi. The danger is particularly serious for the increase and spread of the Dutch elm disease. Weakened elm trees and dying elm wood attract the elm bark beetles that carry the fungus which causes this fatal disease. After breeding and multiplying under the bark of weakened or dying elms these beetles fly to additional trees, including healthy specimens, to feed and incidentally to spread the disease.

The mutilations and deformities caused by glaze storms require many decades to be erased by new growth. Loss of branches reduces the leaf area and consequently the manufacture of food. Wounds require vigorous growth of the tree to heal promptly and adequately. Many small trees that were completely arched over straightened out and appeared to suffer no permanent harm, but others have failed to become completely erect. Staking for several years will be of considerable aid to these. The most serious consequence, however, will be the danger for a great increase in susceptibility to insects and diseases, and because of this prompt removal and destruction of the debris of elms is in particular necessary.

Forest of Haguenau

(Continued from page 217)

safety of the forest. An observation tower to the south, established more than 500 years ago in the steeple of the main church in Haguenau, works in collaboration with another placed in the bell tower of the church of Surbourg at the north rim. By means of triangulation it is a simple matter to locate the spot where a fire has broken out. Late strollers hurrying home through the deserted streets of the city can see the watchers' light burning high up in the steeple, as it has done for so many years.

Perhaps to a greater extent than any other French forest, Haguenau has to fight against difficulties of one kind or another. The soil is poor and offers a hard problem to the men who are responsible for protecting and assuring the forest's growth. They deserve great credit for their work, most of which must be done under unfavorable conditions. There is clay with excessive dampness and dry sand which make any new growth exceedingly problematical. In this thick layer

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of clay, more than three feet deep, are to be found embedded leaves, roots and cones of the many species of trees growing now, as well as those no longer found in Europe, as the *Pseudolarix*, *Carya*, *Magnolia* and *Gleditsia*.

Still further down are uncovered layers of oil-producing sand, which even in the sixteenth century was known to the peasants who heated it in boilers to extract the lubricating oils to be found there. About 1865 wells were sunk that are producing yet, the annual output before the war being roughly 50,000 tons.

Poor soil and a flat river bottom make drainage indispensable but difficult from a technical standpoint. The lack of any perceptible grade means that only at great expense can the unfavorable soil conditions be remedied. Nearly a hundred years ago the French foresters started draining wherever possible and at present there are more than 525 miles of rivers, canals and ditches for drainage purposes.

Another cause for constant worry in this open valley is the presence of high winds during the winter months. These create havoc by blowing down the trees that are poorly rooted in the sandy soil. The storm of November 22-23, 1930, alone destroyed nearly 9,000,000 board feet of timber.

Last to be mentioned, but not the least of the foresters' concerns, is disease. The principal one is the *Fidonia piniaria*, which attacks the pines as its name implies. Between 1924 and 1927 more than 2,000 acres of pines were affected; this required the premature cutting of 375 acres to prevent the spread of the disease.

Although Haguenau was formerly a great oak forest, as has been stated, it has become today especially well known for its pines, which cover more than one half the wooded surface. Likewise there are many beech, birch, ash and spruce. Each species is allowed to grow where it will flourish, because arbitrary planting in this wet clay and sandy soil would tax to the utmost man's ingenuity, already so sorely tried at Haguenau.

Many a plantation of pines has had to be almost completely replanted two or three times before the young trees finally take hold and start to grow in a satisfactory manner. Much supervision is also necessary for the oaks. After a grove of these has been cut, the land must be drained and prepared much as a field, after the harvest, is made ready for a new crop. But this is not all. Once the oaks have been planted or allowed to seed themselves naturally, they must be thinned and sprayed at frequent intervals.

Such great care is required to make the young trees grow that French foresters call Haguenau an artificial forest, as nearly all the softwoods and most of the hardwoods are planted by hand.

In summing up it can rightly be said that silviculture here has been pushed to the highest degree. Much work is necessary to guarantee the survival of these woods under unfavorable conditions and to assure a sufficient return on the land

given up to tree crops instead of to food crops that are so sorely needed in this densely populated section of Alsace.

The cutting of wood is still regulated by the law of 1875 which stipulated that approximately 21,000,000 board feet of timber of all kinds should be felled each year. In 1937, the last year for which complete figures are available as this is written, 8,500,000 board feet of lumber were cut and the rest, comprising 8,000 cords of smaller growth, was sold for stove wood. This brings in much revenue and always finds a ready market as most people in this part of Alsace heat their homes and cook with wood. Even the poorest peasant cottage boasts a porcelain stove.

For these 21,000,000 board feet the forest service received 6,000,000 francs, or \$160,000 at the present very low rate of exchange, whereas in 1929, with vastly higher prices, this amount of wood brought in 12,000,000 francs. This year from its reduced income the city paid salaries of 400,000 francs and shared with the state the other expenses of 1,000,000 francs for cutting and hauling the timber, 300,000 for replanting and 80,000 for the upkeep of forest roads. This present financial arrangement dates from the law of 1696. In France these costs appear exorbitant until one learns that Haguenau is the only public forest where the state cuts the timber and hauls it out to be sold at auction. About 350 men are employed for this work. At other times they are kept busy replanting and working on the roads and drainage canals.

French conservationists have never lacked a full appreciation for the rich woodlands bestowed on their country by a bountiful Nature. As long ago as the seventeenth century the government acknowledged for them this debt in the following passage from an old forest ordinance:

"Of the many and very special signs that a benevolent Providence has seen fit to bestow more liberally on France than on other realms, one of the most striking is the number of large and magnificent forests that abound there."

We may not be far wrong in supposing that one of the reasons prompting this public expression of thanks was the return of the Holy Forest to France by the Treaty of 1648. If this be correct, we may further assume that the rulers of the nation, wise in the needs of their country and ever cautious in the disbursement of its riches, knew that without trees a people can not long survive. The key to the careful husbandry of these natural resources is to be found in the title of the French forest service: *L'Administration des Eaux et Forêts*, which clearly indicates the close relationship existing between trees and life giving water.

This has been recognized officially for many centuries. What a lesson in real long range, farsighted planning, where costly governmental hindsight does not have to be evoked to remedy errors due to lack of plain common foresight.

Cougar vs. Elk

BY WALTER C. THORNTON

THAT cougars sometimes prey on elk is a matter of common knowledge. According to popular conception, the killing of herbivorous animals by carnivores occurs without retaliation. Nature did not entirely overlook the herbivores, however, in regard to matters of defense against their natural enemies. The flailing front hoofs of elk and other members of the deer family are dangerous weapons of defense. I have made two observations on the range of the Roosevelt elk on the Olympic National Forest, in Washington, during the past ten years, which indicate that under some conditions the elk can effectively protect itself and its young against the cougar.

The first observation was made on a ridge between Tunnel Creek and the Dosewallips River in July, 1929. I was then en route to a nearby fire camp. While passing through a small opening in the timber, I was attracted by the torn-up condition of the ground which appeared to be the result of a brief elk fight. This did not seem reasonable, however, as it was not the elk rutting season. Then, entering a thicket at the far edge of the opening, I came upon the carcass of a cougar. A cursory examination disclosed that it was a young animal, perhaps two years old, and that apparently it had been in good health up to the time of its death. Its carcass and teeth were in good condition, and the pelt was perfect. The cougar looked as if it had been dead about three days. I first thought that someone must have wounded the animal and it had traveled to that point, crawled into the thicket, and died. However, I abandoned that idea when I failed to find a bullet wound.

Time did not permit further examination of the carcass, but two days later I returned to the scene to satisfy my curiosity. On this occasion I dragged the carcass out into a small opening and in the bright sunlight made a very careful examination. No evidence of violence was found other than what had the outward appearance of being a slight bruise on the head just over the eye, and slightly towards the center of the forehead. I scalped the cougar and found he had suffered a fractured skull. The wound had the appearance of having been made with a sharp semi-hard instrument.

The area adjacent to the point where I

found the dead cougar was at that season frequented by elk cows and calves. Their tracks were numerous.

The second observation was made in August, 1931, at a point just south of the forks of the Bogachiel River. At the time I was cruising timber with Jim Carson, now a Union Oil Company salesman of Portland, Oregon. Carson was running compass for me and was the first to see the carcass of a cougar lying twenty feet from the heavily used elk trail which follows the south bank of the river at this point. This cougar had the appearance of having been beaten to death with a club.

The area surrounding the cougar's carcass was well cut up with tracks of adult elk and calves. We figured the cougar had been dead about three weeks and that the elk tracks were about that old. We were unable to find definite evidence of a struggle of any kind.

I passed the point where the cougar's carcass was lying on several consecutive days and on each day made further search for the scene of a struggle, but could find nothing which gave conclusive proof of the cause of the cougar's death. Finally my curiosity overcame my dislike for handling such an odiferous subject, and I dragged the cougar's carcass out on the gravel bar and made a quick examination. Apparently no bones were broken, and I could see no evidence of any injury serious enough to have caused death. I noticed what appeared to be a head injury so I removed the cougar's scalp and found a badly fractured skull. The fracture was just above the cougar's eye and had the appearance of having been made with an instrument similar to that which caused the death of the first cougar observed.

The finding of two cougar carcasses, both of which had received fractured skulls in an area frequented by cow elk and calves, leads me to believe the cougars' deaths resulted from an encounter with the elk. I have seen cow elk go after dogs in defense of their calves. They are lightning fast with their front feet and strike a terrific blow. I do not know that elk ever kill cougars, but after watching them use their front feet in battle I believe such an incident entirely probable. It is reasonable to assume that a well directed blow would cause a skull fracture in the relatively fragile skull of a cougar.

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Forestry Loses Two Veterans

(Continued from page 218)

from the Yale Forest School, he received his M.F. degree.

Entering the Forest Service the same year as forest assistant, Mr. Chapman continued in federal work until 1905, when he became forester for the E. P. Burton Lumber Company at Charleston, South Carolina. In 1907 he returned to the Service as assistant forester in charge of operations, and in 1909 was appointed regional forester at Portland. The following year he became secretary and manager of the Oregon Forest Fire Association, and later chief forester for the Oregon Forestry Association.

He was a veteran of the Spanish-American and World wars. In the first he served as sergeant of the 3rd Connecticut Volunteer Infantry; in the latter he served in France with the 20th Forest Engineers, holding the rank of lieutenant colonel.

School Forest

(Continued from page 208)

increased to almost eight acres. There has been some failure, but more than three-fourths of the tract is now reforested.

Last spring a small nursery was established through help of the Soil Conservation Service, which has been very successful in its campaign to interest farmers in growing their own reforestation stock from seed. Through some delay in obtaining enough summer help from the Service, this particular nursery has proved a failure, but with better planning it will be continued next spring.

Miss Rogers, who has marshalled most of the cooperation on this forest, is frequently asked where the money comes from for the surprising amount of improvement each year. She explains that at first savings from other high school biology projects had to suffice. A hundred dollars had been accumulated from bird house and conservation exhibits, county fair premiums, and benefit moving picture showings. This fund served, except for certain small expense allowances, until the spring of 1937, when the Board of Education appropriated \$200, a yearly sum which has continued since that time.

Of course, the hand labor, aside from the small amount obtained from CWA, has been furnished by the boys and girls in the biology classes, each boy giving from one to three days each year and the girls helping with lighter work of weeding the nursery and fall clean-up. Last year, five days were spent by groups at the forest, and the arranging of transportation out from town, as well as guarding against interference with attendance in other classes, has required real planning and ingenuity. The orthopedic bus belonging to the school board has even been

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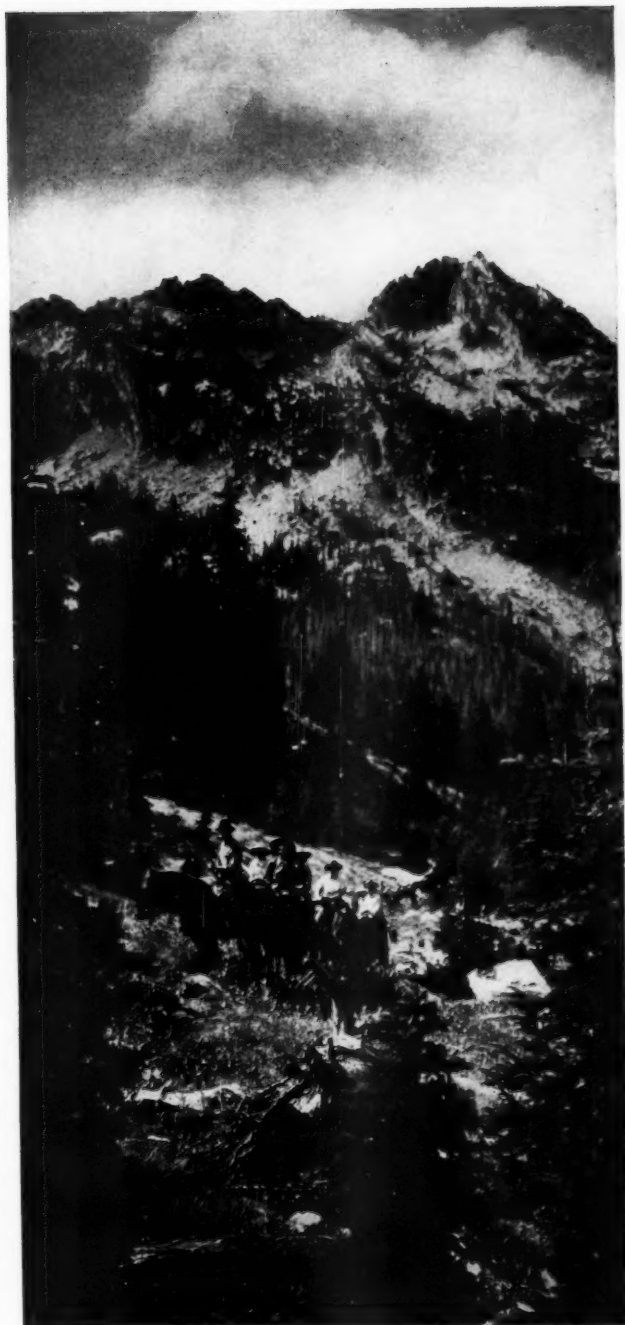
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THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street, N. W.

Washington, D. C.

MAY, 1940

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called into service. Planting-stock is free for school-forest projects, but express charges must be paid. A stock of planting tools has been purchased and the necessary plowing must be paid for.

One enters the Holland School Forest through stone portals and finds himself in front of a log house which is a replica of the first house built in Holland. In fact, most of its timbers were taken from an old log house belonging to an early settler who had lived nearby. Moving and rebuilding this house in 1933 was a labor of love by the Exchange Club, and its members may be forgiven for adding a fireplace and a persisting odor of creosote to preserve the roof and logs. A well has been drilled near the cabin, and in the spring of 1938, through a special appropriation by the Board of Education, an outdoor cooking fireplace and tables were built so that four picnicking groups may be accommodated at one time. The construction of the portals was also financed by the board and completed in 1938.

The cabin makes fine headquarters for work on the forest. It's a bit more spick and span than one would expect, but this building, one must remember, belongs to Holland, a well scrubbed community. There are several pieces of neat, rustic furniture, a corner for tools, a cupboard with tin cups and simple dishes, and cooking equipment. The bright braided rugs on the floor and the gay curtains at the windows show the hands of the girls who find outlet for their energies in this cozy fourteen by eighteen foot building. One of the girls, with the help of an extension worker from Michigan State College, even made the landscape plan for the corner where the cabin stands. Another girl has made a beautiful model of the forest, as it will be, for use in one of the high school's conservation exhibits. Here, then, is the center where biology classes end their school year with a picnic, usually preceded by a swim in the lake and a ride to the cabin for supper. Transportation is furnished and the whole cost is about twenty-five cents apiece.

One returns from a tramp over this interesting forty acres, looks at the entrance, the well gravelled drive, which is another contribution of the Exchange Club, the cabin, the picnic facilities, and then back at the stabilized sand, the growing forest and observes: "Here is something that will be permanent."

The University of Michigan, State College, the Department of Conservation, the county agent, the city engineer, the service clubs, the School Board, the City of Holland, and the public schools of the city all have had a hand in establishing this forest. There is talk now of a recreation hall on the tract some time in the future and, of course, reforestation, forest stand improvement, nursery operation, and fire control will continue as part of the dynamic teaching of biology.

There will still be sawlogs, cordwood, shade, beauty, friendship, and Christmas trees showing up all at once on the Holland School Forest. This is conservation.

WHO'S WHO
Among the Authors in This Issue



Archibald Rutledge

ARCHIBALD RUTLEDGE (*Nature's Cap and Bells*), eminent author and poet, delights the readers of AMERICAN FORESTS with another of his charming articles on wildlife. A native of South Carolina and poet-laureate of that state, Mr. Rutledge is a graduate of Union College. For many years he has headed the English Department of the Pennsylvania Military Academy at Mercersburg.

M. E. MUSGRAVE (*The Apostle of the Tree*) is principal soil conservationist of the Soil Conservation Service at Albuquerque, New Mexico. Formerly associated with the Forest Service and the Biological Survey, he was at one time in charge of the Mexican Springs Experiment Station, working for the return of the natural conditions that once existed in the great Navajo country.

A. J. COATS (*Exploring Hell's Canyon*) is a physician in Boise, Idaho, whose great hobby is adventuring in the outdoors—with or without his camera.

SHIRLEY W. ALLEN (*Holland's School Forest*), forester, educator and author, is professor of forestry at the School of Forestry and Conservation, University of Michigan. He was formerly forester for The American Forestry Association, and prior to that was associated with the federal Forest Service in the West. His recent book, "An Introduction to American Forestry," was published by McGraw-Hill, New York.



Shirley W. Allen

CARL G. DEUBER (*The Glaze Storm of 1940*) is assistant professor of plant physiology at Yale University. He has at times been associated with the Biological Survey and the Bartlett Tree Research Laboratories.

SEYMOUR HOUGHTON (*Holy Forest of Hagenau*), though a native of Connecticut, has spent much of his time in France, having graduated from the School of Political Science at Paris in 1930. The author of several books and many articles, chiefly on economic and political subjects, he turns his pen occasionally to matters of forestry and conservation. Several of these articles have appeared in AMERICAN FORESTS.

COVER—*Dogwood*, photographed near Dayton, Ohio, by D. E. Ahlers.

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V. Allen

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